close air support from "hot pads," night close air support, TPQ-10 radar-directed bombing, and the first Marine strikes into North Vietnam and Laos. The squadron was credited with 300 Viet Cong killed, 127 more wounded, 913 structures destroyed, with 168 more damaged, and 32 secondary explosions. The aircraft availability rate of 92.5 percent was likely the best achieved by any Marine F-4 squadron in Vietnam, and was the product of a smoothly functioning and skilled maintenance team, most of whom had been together for more than three years.

Many other Marine jet squadrons would come to Southeast Asia in the next seven years, but the Grey Ghosts of VMFA-531 were the first. Theirs was an enviable and essentially flawless combat record, which would be recognized when they were included in the award of a Presidential Unit Citation to the 1st MAW, and also awarded the Navy Unit Commendation for their service in Vietnam.*

Cherry Point Again: Rebuilding and Training

As in the two previous tours, the Ghost squadron's colors and "Charlie," the diminutive skeleton mascot in his ethereal robe with pointing finger, returned to Cherry Point and MAG-24. A cadre in training status was activated as the latest reincarnation of VMFA-531, and, on 2 July 1965, Lieutenant Colonel Robert L. Wildey became its commanding officer.[109]

Within two years, more than 113,000 Marines would be in Vietnam in III MAF's two divisions and huge aircraft wing. Half of the operational Marine squadrons—including five F-4 units—would be in WestPac, which would place an enormous strain on those remaining in the United States to provide trained replacements. It would be in this training role that VMFA-531 would serve for most of the Vietnam years. But it would end those years in two, new, leading and exciting roles: a revitalized air combat mission and its first extended deployment on board a carrier.

The new Ghosts worked up in readiness through a two-month deployment to Roosevelt Roads, beginning in late November 1965. One mission at "Rosey Roads" would be extensive air-ground ordnance practice.

During this time, the squadron was joined by a diverse and interesting group of officers who gave VMFA-531 a wide breadth of experience. First to join, as the Ghosts began reforming, were two RAF flight lieutenants; they were followed by two USAF pilots early in 1966; then a number of Key West/Vietnam Ghosts also rejoined to provide leavening, including the maintenance expert, Captain O'Neal (soon to be a major). In addition, a new, young type of RIO began joining. He was a commissioned officer—usually a lieutenant—who had won his naval aviation observer wings after coming through the Officer Candidate and Basic School training pipeline.* The old-timer warrant RIOs would shortly be offered temporary commissions for the duration of the Vietnam war, and most of them would rise to captain before reverting to their former rank. Finally, there was the arrival, on 5 May, of a new commanding officer, Major Frank D. Topley.

The bulk of VMFA-531 training flights, after initial familiarization, was devoted to radar-intercept practice, some 52 sorties in all. Half a dozen flights were conventional air-ground ordnance, and only three involved air-combat maneuvering. In the fall of 1966, the realities of Marine Phantom missions in Vietnam would be accepted at Headquarters Marine Corps, and the air-ground syllabus was increased to 20 flights.[110]

The major event of 1966 was another four-week deployment to Roosevelt Roads, led by Topley. The non-stop 1,487-mile flight to Puerto Rico, with aerial refueling, departed on 27 July in terrible weather. There was nothing visible but continuous thick cloud from liftoff until sighting the KC-130F tanker after nearly two hours and a radar rendezvous.

The squadron's main effort concentrated first on a missile "shoot" using the excellent facilities of the Atlantic Fleet Missile Test Range. Aging Sparrow missiles, whose warheads were replaced by telemetering gear, were fired against drones launched by planes from the local Navy squadron. Sidewinders were also fired against flares. The deployment was rounded out with air-ground ordnance training on the range on nearby Culebra Island.

The climate was like Vietnam. Some who knew said it was worse, especially when choking

*See Appendix F for citations.

*Within two years' time, the NAO field would become unrestricted, with NAOs being redesignated as naval flight officers. Indeed, several former Ghost RIOs would go on to command VMFA squadrons.

clouds of mosquitoes took wing at dawn and dusk. There was still time for high spirits: the clubs offered free rum on Tuesday nights, and then there was an attempted abduction of -531's mascot, "Charlie." The neighboring Navy squadron was suspected, and it was soon determined that 22 rolls of toilet paper could be stuffed into the recesses of a Navy F-4's speedbrake panels. Extending speedbrakes on downwind at the right instant next resulted in an antenna collection on top of a certain hanger being festooned with a satisfying amount of paper! Two squadron commanders were subsequently asked by an admiral to declare peace.

Returning home, the Ghosts found they had been awarded the Fleet Marine Force annual Aviation Safety Award for Fiscal Year 1966 for having flown 3,836 accident-free hours. On 15 September, the unit's NORAD backup capability was tested in an all-night air-to-air weapons exercise. November saw a 17-day air-ground weapons deployment to MCAS Yuma, Arizona, site of the best ordnance ranges in the naval service. This was the first of many Yuma deployments the Ghosts would make.

On 10 December, aircrews began SATS (Short Airfield for Tactical Support) qualifications on the island strip at the nearby auxiliary Bogue Field. Carrier deck space was now at a premium, due to the demands of Vietnam, and SATS was the closest equivalent. Qualification also included launches by a J-79 powered catapult, the same engine as the Phantom's. Compared to a carrier's violent catapult stroke, the SATS system gave a powerfully smooth acceleration over its more than 1,000 feet of run.

Major Roy A. Seaver took command on 16 December, and at year's end noted that 13 pilots and six RIOs had been sent to WestPac. Aircraft and people had been stripped from stateside units, and -531 operated with an average of only 13 F-4Bs on hand. Personnel averaged 50 officers and 210 enlisted men, the latter about two-thirds of normal.

The training pace in 1967 was stepped up considerably to cope with the demands of the five WestPac F-4 squadrons. There were Sparrow and Sidewinder shoots in late February, followed immediately by a 27-day Yuma deployment. At Yuma, the Ghosts broke two Marine F-4 flight time records: 1,016 hours in March and an amazing 1,290 hours for the deployment itself. Despite the pace, the milestone of 10,000 accident-free hours was passed on 15 February. There were two more Yuma deployments in May and October, with -531 spending 69 days there in 1967 alone. Twenty-two pilots and 16 RIOs were sent to WestPac that year, including Major Seaver, who was succeeded by Lieutenant Colonel William K. Parcell on 15 July.

On 7 November, VMFA-531 took delivery of the newest Phantom model, the F-4J with its revolutionary pulse-doppler radar known as AWG-10. Other (Navy) priorities would preclude further introduction of the J-bird to VMFA-531, although the F-4J—later rebuilt as the F-4S—would arguably be the best air-to-air Phantom ever built.

For some time now, the limitations of individual squadron training had been apparent. A newly designated aviator or NFO would report directly to his Fleet Marine Force (FMF) squadron with no intervening training. What training he actually received before being sent overseas varied from good to indifferent, according to the abilities and priorities of each squadron. Inevitably there were gaps, dilution of effort, and lack of standardization.

To overcome this, the Marine Corps embarked on an ambitious program of establishing operational training squadrons. The Phantom program received early attention because its syllabus was the most lengthy and complex of any USMC aircraft. It involved most of the possible fixed wing missions: interception, air combat maneuvering, and visual ground attack, in addition to ancillary missions like aerial refueling, electronic warfare, and carrier/SATS qualification. On 1 April 1968, the first Marine Fighter/Attack Training Squadron, VMFAT-201, was established at Cherry Point, using the assets of VMFA-531. The Ghost's flag was sent to the 3d MAW's MAG-33 at MCAS El Toro, California, thus ending nearly a quarter of a century of -531 association with Cherry Point.

Rebirth and Renaissance at El Toro

On 1 April 1968, simultaneously with its standdown at Cherry Point, VMFA-531 was recommissioned in a training status at El Toro, with Major Karl A. Zimmerman as its commander—and sole member. As Southeast Asia continued to require assets and manpower, rebuilding the squadron would be a long and frustrating affair. By the end of May, only 95 Marines were on board—a combination of some recently returned veterans from Vietnam, and others newly minted from truncated

boot camps and technical training schools.

The immediate mission was to shuffle worn-out F-4Bs through a modernization program at NAS North Island near San Diego. On 27 May, for instance, 20 Phantoms suddenly appeared on the flight line. They were the sorriest bunch of aircraft the older hands had ever seen: covered with battle damage patches, splotches of corrosion-control paint, and carrying the markings of virtually every Marine and Navy F-4B outfit in WestPac. However, the number of aircraft was not matched by any similar amount of maintenance or test gear, and the Ghosts were only able to eke out about two sorties per day.

Zimmerman stepped down to executive officer on 26 July, and the new commanding officer, Lieutenant Colonel Richard "Pappy" Perez, found the squadron faced with two primary tasks: the preparation and transfer of modified and overhauled F-4s to WestPac, and the training of new pilots and RIOs. The first nearly precluded the second. As each refurbished Phantom was brought to fully "up" status, it was summarily dispatched to WestPac—nine F-4Bs alone in 1968—thus hobbling the training effort.

Unable to provide all the desired flight hours to the new aircrews, Perez decreed a comprehensive training program to be established. No aircrew member in training was to have any collateral duties whatsoever; all efforts would go into mastering the F-4 and its missions. Flights would be tailored so that double or triple the normal training would result, and ground training was run continuously in the Ready Room.

And then there was the case of Chief Warrant Officer John W. Bardon, master healer of radar. He was the Ghost avionics officer. A veteran of Korea and later Vietnam, he had somehow managed to acquire several hundred hours and 68 combat missions in F-4s, despite the fact he wore no wings, and indeed had no formal NAO/NFO training at all. He did, however, possess an encyclopedic knowledge of radar and a love of flying. The former he communicated effectively to his troops, with the result that VMFA-531's radar availability quickly rose to well over 90 percent—quite likely the highest in the naval service at the time. Flying in the Phantom without proper NFO designation was quite another matter, as this was strictly prohibited by regulation. An appeal was made with much behind-the-scenes arm twisting, and Bardon was sent quietly away. In a month's time he reappeared, proudly wearing NFO wings, after completing an abbreviated training program at NAS Glynco, Georgia, in only a tenth the normal time. He would be the last up-from-the-ranks warrant officer to be designated an NFO in the Corps.

By the end of 1968, the squadron was stabilized and performing both its assigned missions. In addition, the Ghosts would make four ordnance deployments to Yuma in 1968-69, plus another to NAS Point Mugu for a missile shoot at the Pacific Missile Range. Two more Sparrow shoots were conducted from El Toro in the last half of 1969. However, events and decisions had been unfolding in 1968 and were to have a great influence on the future of the Marine fighter community, and once again, VMFA-531 would be in a pioneering role.

A study which analyzed every engagement to date between MiG fighters of the North Vietnamese Air Force and U.S. aircraft was disturbing.[111] Engagements over North Vietnam were approaching a one-to-one exchange rate in shootdowns. This analysis augured poorly, not only for the current situation over North Vietnam, but also for potential future conflicts. The solution would have to be superior training.

In all the American Services, the advent of nuclear weapons and missiles led to a steadily decreasing capability in air combat maneuvering (ACM). It was not thought to be necessary in modern warfare with the new ability to fire radar missiles without the crew actually sighting the enemy aircraft. But the missiles themselves were designed for non-maneuvering targets, and the F-4B had no internal guns for close-in work. The Phantom had been designed for high speed rather than agility, and many pilots were afraid to push it to its limits, since it had a well-publicized "flat spin mode" from which recovery was impossible. Finally, the F-4B's engines left a smoky trail which advertised its presence up to 20 miles away. All of these disadvantages had to be overcome.

Perez and his successor, on 25 July 1969, Lieutenant Colonel John L. Thatcher, were both committed to an effective ACM program. They were aware that it was an inherently dangerous activity which was carried out on intense short flights but, to their credit, the alternative of sending crews into combat without such training was never considered. Thatcher—a Ghost veteran of the Hise Skyray era and former executive officer of a Vietnam VMFA squadron—had earlier gotten the Corps' first dissimilar ACM program in jets

going in May 1968 at MAG-33. He had designated the first ACM instructors who fought against the F-4Js.

Outside the squadron, beginning in 1968, new policies and programs were established to revive the art of fighting in the air. The official syllabus was rewritten to incorporate maximum performance maneuvering practice from the beginning of training, followed by formal ACM training and radar intercepts using new visual identification tactics, and also engagements with dissimilar aircraft.[112] The F-4B's subsonic G-limits were raised to 8.5 Gs in fighting configuration at low altitudes where the Phantom excelled in performance. Research was started to improve the heavy, double-visored helmet, which was unsatisfactory for high G maneuvers. Efforts were also begun to improve missile maneuvering performance. Newer versions of the Sidewinder in the 1970s could track higher G targets. The first Sparrow missiles were hard to use in ACM, but now the new "Dogfight" Sparrow arrived (although the Ghosts rarely got to carry them at first). The quality of instruction was given a big boost by the formation of the Navy Fighter Weapons School at Miramar in 1969. The first Marines to attend "Top Gun" school flew a Ghost F-4B there: Majors David G. Vest and Noel E. Douglas.*[113] Besides high intensity ACM against various aircraft, they fired missiles against maneuvering drones.

Possibly the most effective training device ever developed for fighter crews was the Air Combat Maneuvering Range and its follow-on version known as the Tactical Aircrew Training System, on which Ghost crews trained after 1972. "Controllers" vectored the fighters onto their unknown but real opposition in an electronic arena east of Yuma, Arizona. Under strict rules of engagement, aircrews used tactics to work into firing position without being "shot down" themselves. The training system randomly programmed simulated missile failures, in addition to those errors provided all too easily by the crews themselves. If tactics, aggressiveness, awareness, and numbers were not right, an opposing fighter might succeed in a "kill," whereupon the computer surrounded the victim's aircraft symbol with a tiny coffin.[114]

At the squadron level, maximum performance maneuvers began at an early stage, with an emphasis on control, to prevent the Phantom's famous post-stall spin. With self-confidence gained early on, crews were now trained in Phantom versus Phantom engagements to learn the fundamentals, then moved up to two versus two, and finally went against dissimilar adversary aircraft like the more nimble A-4 and later the Northrop F-5E. To overcome the Phantom's poor turn rate, pilots were trained to fight low and fast—at least 420-450 knots—and to use slashing attacks.

The RIO's role underwent even more radical change. Now, in addition to conducting the interception itself, he had to be able visually to track and assess various threats to his own and other friendly aircraft, advise his pilot calmly and concisely, and even talk his pilot through maneuvers. In short, he had to become as knowledgeable as his pilot in all the aspects of fighting in the air.

New formations were introduced: the "combat spread" where two aircraft flew about a mile abeam each other at different altitudes, to provide maximum lookout and protection from stern missile attacks. The wingman was given the latitude to initiate engagements.

After March 1969, the Ghosts began practicing the new Navy visual identification tactic. In addition, the F-4's radar was used as an extension of the pilots' eyes to help position the flight for both identification and advantageous attack. This combination permitted the flight to engage from the most favorable position, maintain the offensive, and give an outnumbered flight the best chance of success. The notion that a "mere" wingman could be a deciding factor was revolutionary, but made sense in light of the fact that most air combat engagements lasted only a minute or two at the most. But this new philosophy of ACM and visual identifications required hard training at all levels just to remain minimally proficient.[115] This brought the squadron's pilots and RIOs even closer together: the product of a situation wherein total mutual trust in each other's ability and split-second decision-making was necessary just to stay alive, let alone prevail, in simulated or real combat.

*This precedent came about in a curious way, illustrative of the value of personal relationships. Early on, Thatcher became good friends with the commanding officer of the school, and later noted that "at that time the Navy squadrons had not yet learned the value of this superb air combat maneuvering course. Each class had some cancellations just prior to starting, too late to get additional students. With the concurrence of the wing commander, I agreed with the commander of the 'Top Gun' School that I would have an aircraft, aircrew, and ground handling personnel on board within twenty-four hours to fill a vacancy any time he had a cancellation of a quota."

In spite of all these developments, progress was very slow for VMFA-531 in 1969. Again, a personal relationship opened the door to progress. Thatcher became friends with the Marine commanding officer of the unit which ran weapons systems inspections throughout the Navy and Marine Corps, Lieutenant Colonel Robert Solliday at Point Mugu. When Solliday came to El Toro in late 1969, Thatcher later recalled:

> VMFA-531 had just passed through four of the worst months in its history. We had been lucky to fly a hundred hours a month, because of sending combat ready aircraft to WestPac. . . . We discussed the problems -531 was having, and I described a lack of trained enlisted personnel and aircrews. Bob advised me that he had approximately 50 highly trained technicians working for him from all fields. He was in a slack period nearing the Christmas holidays and believed that he could help us train our personnel.

Thatcher leaped at the offer, cleared it with his wing commanding officer, and welcomed a team from Point Mugu which arrived to conduct an "unofficial" weapons system inspection during December 1969. Afterwards, Thatcher reflected on the results:

> This was the turning point for our squadron. We underwent three weeks of intensive training that culminated in a successful missile shoot. During the remaining months that I commanded VMFA-531, we flew approximately 500 hours of productive combat training each month. The team from Point Mugu conducted an official Weapons Systems Inspection just prior to my departure from being the commander, and in the words of the team leader, VMFA-531 was the most combat ready squadron they had ever inspected, Navy or Marine Corps.[116]

During this time, conventional ordnance training continued apace. On a December 1969 deployment to Yuma, the live bomb and napalm drop rate was 99.1 percent accurate in hitting the target. The first score on the 20mm gun pod showed only 70 percent accuracy, however. As a stopgap measure for close-in ACM situations, the gun pod—originally designed for ground strafing—was pressed into air-to-air service, and the Ghosts began gunnery practice with it against towed target sleeves after 1970.

As 1970 was ushered in, VMFA-531 was well in the forefront of the practice and development of the new air-to-air tactics. Its WestPac aircrew training mission was also given a boost on two counts: the onerous WestPac ferry burden had been lifted earlier in the past fall, and new aircrews began coming on board who had already received their initial F-4 training at MCAS Yuma with VMFAT-101.

Now the Ghosts could concentrate on advanced training under the tutelage of an increasing number of "Top Gun" graduates; four crews alone in 1970, plus another from the USAF Fighter Weapons School at Nellis AFB, Nevada. Stability for experienced personnel increased as the demand in WestPac began to decrease. The NORAD commitment was picked up again and tested in a successful coastal defense exercise in early June. This was followed by what was probably the most sophisticated Sparrow missile exercise so far attempted by a Marine line squadron. Offshore from Point Mugu, first tour crews engaged in simulated combat with small jet drones maneuvering at 2-4 Gs; then 18 aging Sidewinders were fired, and all but one guided correctly in a fine display of just how far the squadron had come.

In another exotic area, defensive electronic countermeasures (DECM), -531 was also in the lead. Beginning in early 1967, naval jets had been fitted with provisions for self-protection against the rising electronic threat over North Vietnam. Although few US-based USMC aircraft were equipped with the scarce DECM "black boxes," the Ghost crews did train in an F-4B cockpit simulator. Sometimes, fully DECM-equipped F-4Bs passed through to or from overhaul. When this occurred, aircrews in training were sent out in them to an electronic warfare range, where they practiced tactics against simulated threat emitters.

The F-4B's DECM gear included active electronic deception systems as well as flare and chaff dispensers as countermeasures against radar and missiles. Along with this was an airborne IFF interrogator, used in conjunction with the F-4B's radar.

Having led the Ghosts through one of their most important transitions, Thatcher was relieved by Lieutenant Colonel Robert N. Hutchinson on

24 February 1971. At the time of his departure, -531 had about seven pilot/RIO teams who had graduated from "Top Gun," more than the rest of the Marine Corps combined. The high standard of the unit's training at the time was reflected in a former first-tour Ghost pilot being appointed a division leader within two weeks of his arrival in WestPac.

Meanwhile, the squadron was preparing for a deployment in a new direction: the Mediterranean Sea.

To the Mediterranean on the Forrestal

After another challenging missile shoot against maneuvering drones and an air-ground deployment to Yuma in March 1971, the Ghosts now faced yet another type of flying, the demanding one of the extended carrier operations at sea. The readiness of the squadron was tested in FMFPAC's first tactical readiness evaluation, which began with an overnight notification on 13 July. The wide range of the VMFA mission was shown in the lists of tasks accomplished in the next three days. The first day included an eight-plane air-ground ordnance delivery, followed the next day by all of the air-to-air roles such as intercepts, visual identification, and large ACM engagements flown against dissimilar adversary aircraft. The final day was an "excellent" missile shoot.

One key to the Ghosts' success was its operations officer, and future executive officer and commanding officer, Major David G. Vest. A Vietnam combat veteran in 1968-69 with another VMFA squadron, he returned to be the guiding spirit in the new air-to-air tactics at El Toro before coming to VMFA-531. In October, he was presented the coveted Alfred A. Cunningham Award as Marine Aviator of the Year. Simultaneously, the R. Guy Robinson Award for the outstanding Marine flight officer was presented to -531's Captain J. D. "Little John" Cummings.

Following yet another Yuma deployment, the squadron was ordered to carrier qualifications on board the *Kitty Hawk* (CV 63) on 19-22 November with a sister squadron. Thus, they became the first FMFPac fighter squadrons to undergo such training since 1965. Seventeen crews became carrier qualified, including the new squadron commander, Lieutenant Colonel John T. Zych, Jr., who had taken over on 13 October 1971. At the same time, the Commanding General, 3d MAW,

A port bow view of the aircraft carrier USS Forrestal *(CV 59) underway in the Mediterranean.*
Department of Defense Photo (USN) KN23750

Brigadier General Leslie E. Brown, was asked to select a VMFA unit for deployment to the Mediterranean on board a CVA, to take some of the burden off a greatly overextended Navy carrier aviation force. He nominated the Grey Ghosts, making them the first Marine F-4B squadron to deploy on board a carrier. Apart from one other squadron, it had been six years since any Marine fighter squadron had served a tour on board a carrier.

On 27 February 1972, the Commandant, General Robert E. Cushman, Jr., formally selected VMFA-531 to go on board the *Forrestal* (CVA 59). The Ghosts had just completed another one of their patented missile shoots off Point Mugu, as well as a week-long dissimilar ACM exercise with Air Force F-106s. Two days later, they deployed for two weeks of conventional ordnance training at Yuma. The aircrews were now at peak readiness, although the maintenance department would now be forced to endure some pressure-laden times.

The largest task facing the Ghosts was the modification of 14 F-4Bs for sea duty, despite a nearly 100 percent turnover of maintenance personnel. Moreover, there would not be enough time for many men to attend specialist schools. Maintenance now went onto a 24-hour, seven-days-a-week schedule. Fourteen F-4Bs were transferred out and 10 others brought in, all of which had to be equipped with defensive electronic countermeasures gear and a datalink guidance system. To meet the special demands of carrier service, special landing systems were slated for installation. All hands also attended a fire-fighting course to prepare them for one of a carrier's most feared events, fire at sea. Now the Ghosts began to stabilize for sea duty on the *Forrestal* with 40 officers (17 aircrews) and 256 men.

On 12 May 1972, USAF C-141A jet transports lifted 212 Ghosts and 98,585 pounds of gear nonstop to NAS Oceana, Virginia, the Atlantic Fleet's main fighter base. The aircrews came in 14 F-4Bs, 12 of which would actually go on board. At Oceana they worked on field carrier landing practice (FCLP), following up their hard training at El Toro in night FCLPs. Carrier Wing-17's landing signals officer subsequently pronounced many crews ready to qualify with no more than a "night refresher." By 29 June, all 17 crews were day qualified, and 13 were night qualified after two landings on board ship.

The first days at sea were a new experience for nearly all the Ghosts. They struggled to master the maze of the ship's passageways and ladders to find their work spaces and bunks, which were stashed in diverse cubbyhole compartments. There was also the realization that they were no longer a direct supporting arm of Marines ashore, but defenders of a carrier battle group, and that they were by far the least experienced unit in carrier operations on board.

On 25-28 June, the *Forrestal* and Carrier Wing-17 underwent and passed at sea an operational readiness evaluation in all its missions. During a 37-plane strike escort, all three simulated "kills" against aggressor A-4s were credited to the Ghosts. The evaluator commented on -531's strong and weak areas:

> Strong areas: (1) Strong and dynamic training program. (2) Excellent system availability. (3) Outstanding morale and enthusiasm throughout the squadron, and a high degree of competitiveness among aircrews. Weak areas: (1) Carrier performance; two pilots not night carrier qualified, and most crews need more work around the ship. (2) More EW [Electronic Warfare] training required. (3) No qualified LSO [Landing Signals Officer].[117]

Considering that hardly any Marines at all had flown jets on ships in years, and that the Navy had first claim on EW gear, this was high praise indeed. The ship and its wing were pronounced fully ready for their missions at sea.

The *Forrestal* now had a serious misfortune; it was sabotaged by fire by a young sailor, causing $7,000,000 worth of damage. Happily, the Portsmouth Navy Yard beat the repair doomsayers, and on 25 August the *Forrestal* began requalifying at sea with another Operational Readiness Evaluation.

On 22 September, four months after the Ghosts had left El Toro, their ship passed Gibraltar and came under the control of Commander, Sixth Fleet. Shortly afterwards, the squadron was gratified to learn that it had won the Chief of Naval Operation's Aviation Safety Award for 1972.

As flying began in earnest that fall, the Ghosts began to appreciate the full measure of skill, hard work, and harmony that was required to operate effectively and safely in the inherently hostile environment at sea. There was "the unending

and monumental task" of keeping aircraft free of corrosion in the constant salt spray. The high tempo of deck operations during launch and recovery left no margin for error. Both air and deck crews carried out their duties on the run.

The *Forrestal*, as many carriers, operated on a "very rigid one and one-half hour cycle time." This meant that a cycle began with the catapult launch of typically 24 to 28 aircraft. Precisely one hour and 30 minutes later, a similar number were launched. Only after these were airborne could the recovery of the first group begin. For daylight visual recoveries, aircraft were stacked abeam the ship at thousand feet intervals in sections or divisions.

Cloud ceilings modified the system, and the flight leader made an approach by TACAN down to daylight, visual conditions underneath the clouds, followed by a normal landing. Night and bad weather required a full instrument approach, using either the GCA talkdown method, or the automatic carrier landing system. Incoming flights were sorted by type and fuel state, handled individually on approach, and assigned a specific holding point and approach time.

Automatic carrier landings were still very much in their infancy in 1972, and often deficiencies in the ship's or aircraft's equipment prevented an easy daylight visual recovery. Night carrier landings were by common assent the most frightening part of carrier operations for the aircrews, and any system that aided in a safe arrival to arrestment was welcome indeed.

The pilots of -531 found the one-and-one-half-hour cycle time interfered with staying proficient in their air defense mission. After launch, the fighters were being flown at maximum endurance speeds to conserve fuel. Thus, ACM training with afterburning or high power settings was precluded. However, a lobbying push in late October by Major Howard L. "Lopp" DeCastro, the squadron's operations officer, enabled the Ghosts to be launched just before the previous cycle's recovery, engage either the returning flights or each other, and then follow them into recovery after a brief but intense flight. Close liaison with the ship's combat information center and the airborne early warning E-2 plane controllers enabled the Ghosts to come under their control from shortly after launch until recovery, thus permitting an airborne combat air patrol (CAP) during virtually 100 percent of flight operations.[118]

However, the control situation deteriorated during periods when the ship suspended radio, radar, and TACAN transmissions to mask its position, as practiced during 12-20 November. Unlike USAF and USN planes, the F-4B had no self-contained navigation aid, and the E-2s could only give vectors to the ship. Nonetheless, by mid-December, the Ghosts were carrying out interceptions with relish against other Forrestal-based planes, in conditions of both communication and radar jamming. In other areas, the Ghosts found their aircraft radars could detect surface targets 35 miles away, and sometimes they even found some small vessels that the fancier ship and airborne radars failed to see.

New Year 1973 found the squadron fully integrated into shipboard life and missions. Ghost crews got to crossdeck and fly with a squadron from the Royal Navy's HMS *Ark Royal* in February, while VMFA-531 hosted two of their F-4Ks on the *Forrestal*. Then followed a combined exercise with the Spanish Navy and Air Force in the western Mediterranean during March. The exercise ended 30 March when the ship diverted to Tunisia to assist in flood relief. A third and final missile shoot in mid-April at sea near Crete was again entirely successful.

As the *Forrestal* did one last loop through the eastern Mediterranean, it conducted combined operations with Turkey in May. The squadron's final exercise of its tour with the Sixth Fleet occurred on 15 June. A three-day inspection then rated VMFA-531 "excellent" overall. Passing Gibraltar on 29 June, the Ghosts' thoughts turned toward home at El Toro.

On 5 July, as the carrier neared the Virginia coast, the 12 squadron Phantoms were catapulted off to make their way home. After the ship docked at Norfolk, the remaining Ghosts boarded Navy transports for El Toro. The 14-month deployment had been one of the longest for a Marine unit since the 1950s.

Even by the strict standards of naval aviation, the deployment of VMFA-531 on the *Forrestal* had gone extraordinarily well. Not only had the Ghosts carried out all their assigned tasks in the unfamiliar and demanding environment of carrier operations, they had done so in an innovative way, by introducing new tactics and exploiting the rapidly evolving capabilities of airborne early warning and control via datalink. The availability rate of the F-4B's aging radars and complex DECM gear had remained exceptionally high throughout, and the squadron had consistently

led with the highest missile firing rates. Its pilots were now all *Forrestal* "Centurions," with well above 100 arrested landings each. They had averaged 115 landings during the cruise, 26 at night, with Lieutenant Colonel Zych leading with a total of 129. Chief Warrant Officer-2 John "Condor" Bardon was the most experienced RIO overall, with 1,825 total hours. Most gratifying of all, in what was perhaps the most hazardous type of flying extant, there had been no accidents.

Such achievements did not go unnoticed. The squadron won its second successive CNO Aviation Safety Award. At a formal banquet on 28 September 1973, the Marine Corps Aviation Association presented its most prestigious awards to Ghosts. Major "Lopp" DeCastro was given the Cunningham Trophy as Aviator of the Year, while "Condor" Bardon was named Naval Flight Officer of the Year. Captain Louis E. Sergeant, Jr. was Air-Ground Officer of the Year, and Sergeant Ronald L. Harvin was Plane Captain of the Year.

El Toro Home Interlude

The next two years were somewhat anticlimactic as the squadron rebuilt at El Toro. On 26 July 1973, Lieutenant Colonel Michael P. Cady took command of the squadron. That day they heard the *Forrestal* wing commander compliment VMFA-531 as the finest fighter squadron he had worked with in 20 years: a high goal indeed for Ghosts yet to come![119]

Now the unit reverted to its training role, as large numbers of the *Forrestal* veterans were transferred away. Scheduled maintenance was regulated by flight hours. Improved DECM radar homing and warning gear was installed. By late 1973, the squadron was again deploying to Yuma and engaging in dissimilar air combat training (DACT) with Navy fighters on the new air combat maneuvering range.[120]

On 29 March 1973, the war in Vietnam had ended with the Paris Peace Accords and the withdrawal of the last American troops. The later years of the war had seen an immense strain on morale in the Corps, which manifested itself in rising drug use and racial incidents. The Ghosts, like Marines everywhere, began participating in the Corps' innovative and experimental human relations program, which attempted to get Marines to see each other as individuals, rather than as members of any racial or social group.

The numbers on -531's roster also declined as the Corps went through a postwar reduction in force. On 27 August 1974, the new commanding officer, Lieutenant Colonel John A. "Jack" Gagen, took charge of only 24 officers and 157 enlisted men, the lowest strength since 1947. Despite having only about 80 troops effective at any one time, -531 kept up its full range of activity of ACM, ordnance delivery, and missile shoots. In the last half of 1974 alone, the Ghosts had defensive air combat tactics (DACT) exercises with F-8s, F-14s, A-4s, and F-106s, in addition to intercepts in heavy electronic countermeasures against EKA-3s, EB-47s, and B-52s. They also flew the first trials of a new ground-based bombing radar.[121] One bright spot for the depleted squadron was the 1974 award of the Alfred A. Cunningham Trophy to Major Michael P. "Lancer" Sullivan, a veteran Ghost from Key West and Vietnam days.

The Marine Corps was finally moving to replace the elderly F-4B, now entering its 13th year of service. Serious signs of aging had now begun to appear. On 23 November, however, -531 accepted delivery of a reincarnated F-4B known as the F-4N. This new model was rewired and strengthened, and one key improvement was its visual target acquisition system for its Sidewinder missiles. The Ghosts appear to have been the first Marine squadron to use the system which made the Sidewinders much deadlier, especially when combined with the increased maneuverability given by the improved Sidewinder models.

The final F-4B flights were flown on 16 May 1975, just after the squadron passed 15,000 accident free hours. (The superior safety record of the Ghosts had again been recognized by presentation of the FMF Safety Award earlier in January.) On 10 June, Gagen took the flag to MCAS Beaufort, South Carolina, as VMFA-531 was reduced once again to cadre status in MAG-32, awaiting arrival of an exciting new plane, the F-14A. Plans changed, however, and the Marine Corps did not adopt the F-14A. Accordingly, the cadre was returned to El Toro 29 August 1975 as part of MAG-11.

As had happened several times before for -531, it was a case of starting all over. Gagen, the MAG-11's operations officer at El Toro, volunteered to leap into the breach and was again given command of the squadron. "We reformed from scratch at El Toro, without a screwdriver . . . or a screw for that matter," he later recalled.[122] The aircraft were F-4Ns just coming out of rework, and most

of the aircrews came from staff billets or the aborted F-14 training program. But, by early 1976, four captains had been pumped through the "Top Gun" school, and -531 was back in full operation. The squadron participated in an adversary exercise against the USAF's superb fighter, the F-15, and hosted the Navy's new adversary squadron. The F-15 was the most capable aircraft any of the Ghosts had ever come up against, and they felt the best they could hope for in a one versus one engagement was simply to survive.

After leading the squadron back from an advanced fighter tactics course at Tyndall AFB, Florida, Gagen handed the colors over to a distinguished Ghost alumnus, Lieutenant Colonel David G. "Yuma" Vest on 24 June 1976. His tour began with an unfortunate episode, for on 13 July a squadron F-4N was lost at sea on a routine training mission. The pilot and RIO were successfully rescued, but a proud string of five years and 19,330 accident-free flight hours was broken.

Vest now worked hard at introducing new tactics and techniques to keep the aging Phantom a potent weapon despite funding cutbacks. Over the next year the Ghosts worked on air-to-air gunnery, instrumented "loft deliveries" of conventional weapons, and new close air support tactics based on a sudden "pop-up" in altitude in attacking the target.

The "loft delivery" technique had been pioneered in Marine F-4s 10 years earlier in a Vietnam Marine fighter squadron of which Vest had been a member. The tactic involved a high-speed, low-level run-in from a visual or radar initial point. Using the F-4's Low Altitude Bombing System, the bombs could be lofted over four miles down range, thus keeping the aircraft out of the range of increasingly deadly close-in anti-air weapons. If the bomb was fitted with the new laser guidance head now coming into use, its final trajectory could be guided with pinpoint accuracy.

The new threat of anti-air weapons also required a revamping in the way the Marine Corps conducted close air support. No longer could close air support aircraft expect to survive circling the target and then rolling into attack, as was done in previous wars. At Yuma in September 1976, the Ghosts practiced a new form of close air support, using terrain to mask low-level approaches to the target. The FAC's brief now included a "time-on-target" to the nearest second. The attackers used a "pop-up" to gain altitude, followed by only a few seconds of tracking time. Because pilots could never hope to distinguish their target in such a short span, their "pop-up" had to commence just as a target spotting mark, such as a white phosphorous mortar round or rocket, impacted. The process required exquisite coordination and timing, and therefore frequent practice as well. A 3d MAW evaluation done at Yuma at the same time rated VMFA-531 as "Excellent." This was due to the superior performance of all the squadron personnel, exemplified by the Marine Corps Aviation Association's 1977 Aviation Exceptional Achievement Award to Ghost veteran Lieutenant Colonel Ray L. Hanle, Jr.

Another type of simulated air war was the Air Force's Operation Red Flag, which worked on the premise that most pilots who were shot down in combat were lost before completing 10 missions. Red Flag attempted to provide these missions before actual combat, and the desert north of Nellis AFB, Nevada, was filled with assorted threat emitters and aggressor aircraft. Every action was meticulously recorded for often painful review later. Twenty-five Ghost crewmembers went through Red Flag 77-7 in June.

Vest's tour was capped by a formal review to verify actual weapons system performance in the field. All nine aircraft selected passed in what was described as the "most successful" review ever, a tribute to the ability of the Ghosts in keeping such an outdated aircraft going in its 17th year of service. On 1 June, another test of -531's "surge" capability for operationally ready/full system capability F-4Ns resulted in triumph, as an amazing 51 sorties were flown in only 11 hours with no cancellations. On 9 June 1978, Vest was succeeded by Major John A. Williams.

Captain James A. "Ratzo" Ardaiolo later described Vest's tenure:

> [He was] a great skipper who set the standards for the squadron to meet, and thus put in place the framework that led to the squadron's subsequent awards.
>
> We all liked "Yuma," but he had a few idiosyncrasies that, of course as Skipper, he was entitled to. We always got a kick out of his meticulously briefed hops, particularly regarding taxi procedures. He frequently never got around to the tactics portion of the hop prior to "walking," but we sure knew how to taxi!. . . and of course RIOs

Department of Defense Photo (USN) DNSC8511128

With a squdron F-4 parked in the background, three crewman stand by with two tractors and a mobile electric powerplant during flight deck operations on the aircraft carrier USS Coral Sea *(CV 43).*

were never to communicate with ground or tower control!

> On a deployment to Yuma, AZ, a couple of sections miscalculated . . . and lofted 500 pounders, thankfully inert, towards a major road with an 18-wheeler crossing between targets. Somewhere there is a trucker who is still very "puckered up;" and [there was] the time after I was crewed with "Yuma" that we dropped a whole load of 500 lb. inerts at the IP [impact point] . . . when for some reason we got our switchology mixed up . . . I suggested on ICS [intercom system] that we not tell anyone, when over the air our wingman (telling the world) asked what that big cloud of dust was behind our plane?[123]

That fall there was a red letter day for the Ghosts. On 7 October, the Commandant, General Louis H. Wilson, Jr., gave VMFA-531 the Marine Corps Aviation Association's Robert M. Hanson Award as the Marine Corps' top fighter squadron.*

Williams continued Vest's work with a dual-missioned (ACM/DACT and ordnance/CAS) deployment to Yuma in November. Next came the staff planning for the aviation segment of a Combined Arms Exercise. On 1 December, the Ghosts arrived at the austere expeditionary airfield in the high desert at Twentynine Palms, California. For the first time a commanding officer of -531 was responsible for all aviation units of a Marine Amphibious Unit, including detachments of CH-46s, CH-53s, UH-1Ns, AH-1Js, OV-10s, and A-6Es, some 600 Marines in all.** Not only did Ghost aircrews act as the aviation staff, they also flew day and night close air support missions in a simulated high threat environment using "pop-up" tactics. The fast paced exercise

*See Appendix F for citation.

**Marine Amphibious Units (renamed Marine Expeditionary Units in 1988) were the smallest of the Marine Corps' task forces. MAUs centered on a battalion landing team, combined with a composite squadron, and a service support element.

VMFA-531 WestPac Cruise, 1979-1980

Following a mission brief, aircrews suit up and proceed to the aircraft for a possible "Goldilocks" alert or routine mission launch.

was intended to weld a mechanized Marine force together in order to fight successfully in a difficult desert warfare scenario.

Quite coincidentally, the climate and terrain at the exercise was remarkably similar to that of Iran where an Islamic revolution had recently taken place. Returning to El Toro, the Ghosts learned they had been selected for sea duty in 1979 on board the *Coral Sea* (CV 43), along with their sister MAG-11 squadron, VMFA-323.

The Indian Ocean on the Coral Sea

Early in 1979, the squadron began to stabilize for carrier duty. While keeping up the full gamut of missions, including some of the largest ACM engagements to date, the Ghosts cranked up an intense field carrier landing program and began the training of two landing signals officers. One helpful aid to carrier landings was Miramar's simulator with a computer generated visual display of a carrier deck at night and full control and landing equipment. It was now possible for pilots to get used to some of the sensations without the terror that surrounded actual operations.

In February, -531 qualified on the *Kitty Hawk.* This was followed by two weeks of training with the various other squadrons of Carrier Air Wing 14 (CVW-14) at NAS Lemoore, California. The conclusion of that intensive fortnight was later described by Ardaiolo:

> Some Navy staffer thought it would be a great idea to have an air wing dinner to get us together and to celebrate our accomplishments. At the head table were the CAG [carrier air group] staff and the visiting MAG-11 CO. The squadrons sat at long tables perpendicular to the head table. At the outside tables were VMFA-323 on one side and -531 on the other, with all the Navy squadrons in between.
>
> That arrangement was a tactical error and an invitation for fun, which none declined. Shortly after dinner commenced, the dinner rolls started to fly, followed by prime rib bones, baked potatoes, and anything else we could lay hands to, including fire extinguisher contents. CAG asked "Zorro," the MAG CO, if he could stop the melee, who

reportedly said he could, but, under the circumstances, didn't think that would be a good idea![124]

Surviving that episode, the squadron had its first carrier qualification flights on the *Coral Sea* on 27 March. There was a total of eight brief deployments to the ship, plus others to Lemoore and El Centro. Later, VMFA-531 and -323 hosted a special visitor, former Ghost AIO/RIO, now-retired Captain Eugene S. "Mule" Holmberg, who briefed the squadrons on the Iranian Air Force. He had just returned from Iran after having spent three years there as a civilian F-14A flight instructor. In addition, several crews got to fight the USAF's new, super-agile, clear-air-mass fighter, the F-16, at Hill AFB, Utah. Other developments included introduction of the latest and most deadly model of Sidewinder yet, known as the "Lima" or AIM-9L.

On 31 May 1979, one of the Corps' most experienced carrier pilots took over to lead -531 for the *Coral Sea* cruise. He was Lieutenant Colonel Gary R. "Jinx" Braun, a veteran of 360 combat missions, who had also accumulated some 400 carrier landings on earlier cruises, dating back to 1965. Leading the sister squadron, VMFA-323, was Ghost alumnus and old carrier hand, Lieutenant Colonel David V. "Hook" Denton. For the first time since the Korean War, Marine fighter squadrons would be responsible for the airborne defense of a carrier battle group. The Marine team proved to be an effective combination. Braun later thought the reason for picking Marines with 17-year-old planes was due to the Navy getting "caught in a squeeze for manning their smaller CVs during the transition to F-14s. The F-4Ns were 2,000 to 3,000 pounds lighter than the F-4J, which also helped, as did the ship's aircraft intermediate maintenance department being geared up for Phantoms earlier."[125]

In the last half of June, the squadron under-

Armed with Sidewinder and Sparrow missiles, an F-4N Phantom II is launched from the Coral Sea *(CV 43).*

Department of Defense Photo (USN) DNSN9300837

went both Marine Corps combat readiness system and 3d MAW inspections. The readiness score of 92.4 percent was the highest yet recorded for an F-4 squadron. The Ghosts had now stabilized at 35 officers and 217 men, in addition to the 12 F-4Ns they would take on the deployment. Their superior maintenance and operations were reflected in an 8 August receipt of the Chief of Naval Operations Safety Award.

The period up to the ship's departure on 13 November was crammed with more "carquals," mission training, electronic warfare training at China Lake's Echo Range, and missile shoots, including the first of the improved, extended range Sparrows to be fired in the fleet. Three crews meanwhile completed the "Topscope" class at Miramar, while two more took the "Top Gun" course. There was also low-altitude tactics training, which was conducted against A-4 adversaries at up to 600 knots and 6 Gs at very close to zero feet altitude over the desert floor. For the aircrews involved, these were likely the most physically debilitating and dangerous flights in the syllabus.

The pilots flew their F-4Ns to NAS Alameda, California, in the second week of November, and the planes were then lifted by crane on board the *Coral Sea*. As the ship departed for its first stop at Pearl Harbor, the taking of about 100 hostages by fanatic students at the American Embassy in Teheran, Iran, captured the attention of all Ghosts, as it did all Americans. Then it was announced that the United States would not rule out use of force, and the *Coral Sea* was sent on its way after only four hours of replenishment at Pearl.

As the ship steamed north of Guam on 28 November, it detected a large airborne target approaching the ship. The Marine fighters were duly scrambled and had an uneventful intercept of a Soviet Tu-95 "Bear" maritime reconnaissance bomber. After stops in Korea and the Philippines, VMFA-531 welcomed 1980 with a January dissimilar air combat maneuver against RAF and Republic of Singapore Air Force planes. For one day the ship set aside its rigid 1:45 cycle time in favor of "hot cycling/hot decking," to generate maximum effective air defense sorties while operating 50-100 miles northeast of Singapore. This was followed by four welcome days of liberty ashore.

Leaving Singapore, the *Coral Sea* headed into the Indian Ocean, and then, in a change of plans, it was ordered to rendezvous with the *Nimitz* (CVN 68) on Gonzo Station, about 100 miles off the eastern tip of Oman in the Arabian Sea. From Gonzo, surveillance, and control if necessary, of the Gulf of Oman and the narrow and strategic Strait of Hormuz about 350 miles northwest could be carried out, while still leaving plenty of sea room for maneuvering.

The Ghosts now dusted off their notes from "Mule" Holmberg's brief nine months earlier. Iran's air force was made up of the remnants of the Shah's elite Imperial Iranian Air Force. A year earlier, the Iranians had a substantial number of modern fighters with excellent radar, in addition to an effective maritime surveillance force, as well as GCI radar and improved Hawk surface-to-air missiles surrounding the major airfields. Along with ship-launched Harpoon and Exocet missiles, these forces constituted a significant threat to the battle group. It would be the task of the two Marine squadrons to defend the *Coral Sea* against any such threat. No one imagined at the time that they would be doing it for a record 102 days of "blue water" operations.

They would now strive to keep a continuous CAP of two F-4s each aloft over the battle group by day. This was continued through the night at first, but it led to a strain on resources and manpower, so the two squadrons alternated for one two-plane launch per cycle. The 1:45 ship cycle time meant that much of each F-4 flight was spent at maximum endurance levels. This put a crimp in ACM proficiency, so most crews got only two ACM flights a month. All Ghosts realized that this "Force CAP" (combat air patrol) was for real, as was the fact of "blue water" operations—without a viable airfield on land for diversion in an emergency. The ship worked an eight-day cycle: six straight days of flight operations, followed by a one-day stand down for all flying units, and then a day of maintenance. The cycle was phased with that of the *Nimitz*, so that the task force would always be covered.

Combat air patrols at times ranged into the 40-mile wide Strait of Hormuz itself. These were still international waters, but barely so, and the Ghosts had to watch their positions carefully. Interceptions were carried out against the Soviet reconnaissance bombers that came over regularly. On one occasion, the Ghosts were engaged in a barbecue with soda pop refreshments on the "steel beach" of the flight deck, when all hands were startled to see assorted *Nimitz* aircraft parade

Department of Defense Photo (USMC) DMST 8207625

During a practice run, an F-4 Phantom II drops a napalm canister on a desert training range.

overhead in an attack demonstration, followed immediately by two flights of Soviet Tu-95s at 500 feet escorted by F-14s "just like a damn airshow," Braun later commented.[126]

On Gonzo Station, the Marine squadrons practiced tactics worked up to counter anti-ship missiles. Harpoons and Exocets, which were carried on Iranian naval vessels, were a most worrisome threat. If their launching platforms could not be dealt with in time, the next line of defense was for the Marines to detect and bring down the small, sea-skimming missiles. This was a tricky exercise, since the F-4N lacked moving target indicators which could separate the missile from masking sea and ground returns. In addition to working in two battle group exercises with the Nimitz in mid-March and mid-April, the Ghosts provided fighter cover in a minelaying exercise with B-52s of the Strategic Air Command.

As the patrolling at Gonzo wore on, the ship shared a national sense of agony and impotence over the fate of the 53 remaining American hostages held in Teheran, who were mostly fellow Marines from the security guard. The Ghosts could not know of steps being taken to rescue the hostages in a daring and complex plan which would involve them.

In the third week of April, Braun and other commanding officers were flown over to the *Nimitz* for a briefing on the proposed rescue operation and possible punitive air strike. A series of actions had been designed to get the hostages and bring them to an airfield called Manzariyeh, 40 miles from Teheran. To protect the evacuation transports, President Jimmy Carter had ordered, "There will be air cover from Manzariyeh all the way out of Iran."[127]

Accordingly, the *Nimitz* was to provide very long-range (some 850 miles from the ship) fighter cover near Manzariyeh. The F-4Ns of VMFA-531 and -323 would initiate CAP over an Iranian airfield about 340 miles away from the ship, to prevent any threat from that quarter. President Carter canceled the air strike on 23 April, and then the helicopter operation turned into a disastrous failure at a secret refueling site in the Iranian desert after a ground collision between two of the rescue helicopters in severe blowing dust.

As these events were unfolding, the regular -531 CAP orbited near the ship, while the other

crews awaited orders that never came to launch for the Iranian airfield. Few Ghosts slept that night, and at about 0400 the next morning word was passed that the rescue mission had failed.

The final patrols occurred a few days later as the Ghosts escorted some outbound Navy supply ships through the Strait. Finally, on 9 May, the *Coral Sea* arrived at Subic Bay in the Philippines after 102 days at sea. Soon the ship turned homewards. Off the California coast, 12 ancient and weary -531 Phantoms were catapulted off a last time for El Toro.

The memories of that cruise would always remain vigorous in the minds of the Ghosts who were there. Again, Ardaiolo recalled:

> The long days on alert in the Indian Ocean; the many acey-deucy tournaments; the huge storm that damaged so much aboard ship; the first intercept of Russians coming to look over the task force by our most junior crew, causing some consternation amongst the Navy, which was used to sending their most senior guys out to say hi to the Commies; the long hours at work by all the squadron Marines . . . the very dangerous flying conditions aboard the ship—CAG lost five aircraft, one of [- 323's] Phantoms slid off the deck into the ocean while being towed with one of our maintenance personnel in the cockpit riding brakes; our Marine was rescued; on another occasion one of our aircraft, with engines turning, loaded with live missiles during a hot aircrew change, broke its chains and slid into the catwalk rupturing the centerline tank, nearly creating a major catastrophe.
>
> The war footing we went on during the Hostage Crisis in Iran; flying CAP to protect the ship and task force; planning strikes into Iran should it had become necessary; the "This is no drill" battle stations we went to the morning of the aborted rescue mission into Iran.[128]

In a broader evaluation, the failure of the Iranian rescue mission would necessarily mute what had otherwise been a triumphant deployment on the *Coral Sea.* The Ghosts had accomplished all their challenging missions in exemplary fashion in the difficult and hazardous conditions of "blue water" operations of unprece-

At Marine Corps Air Station, El Toro, a squadron Phantom is maneuvered into its parking space.
Department of Defense Photo (USMC) DMST 8304059

Photo courtesy of Maj William Henson, USMC, USMC

A -531 Hornet roars off the runway for a close air support mission in February 1984.

dented duration. All crews went well past the 100 mark in carrier landings, and most made 150-160 of them on the cruise, with -531 totaling 1,163 day and 588 night landings. There had been no real accidents in these venerable Phantoms. Availability had been superb thanks to diligent round-the-clock maintenance. Had the necessity arisen on 24-25 April, the squadron crews would no doubt have rendered a good accounting of themselves in combat, due to the superior state of their training and readiness.

For their contribution as part of CVW-14, the Ghosts were included in a Meritorious Unit Commendation and awarded the Marine Corps Expeditionary Medal, the first time the latter had been awarded since 1964.* The squadron also won the prestigious Commandant's Aviation Efficiency Trophy with a citation that noted the Ghosts, while on board the *Coral Sea*, "led the wing in mission capable rates."

El Toro Again: Enter the Hornets

After short leaves, the Ghosts were quickly back at work with electronic counter-countermeasures training against USAF planes in mid-July, a MAG-11 missile shoot in early August, and a deployment to Yuma in September. In between were detachments for DACM at Eglin AFB, Florida, Luke AFB, Arizona, NAS Fallon, Nevada, and Yuma. On 15 November 1980, the squadron was saddened by the loss of First Lieutenant Peter Rabeziwaki, when his ejection seat was fired accidently while on the ground at Sheppard AFB, Texas. It was the first death of an aircrew member since 1969.

On 11 December, the dynamic and able Braun was succeeded by Lieutenant Colonel John L. Vogt. The new commanding officer was faced with a large turnover of many of his key officers and enlisted men, in addition to an influx of five brand-new crewmembers.

After hosting four "Top Gun" instructors, two of whom were former Ghosts, the squadron deployed for a Red Flag exercise at Nellis in February 1981. There they acted as aggressors, an ideal training situation since the syllabus required many DACM/DACT sorties.

The Ghosts had now passed 15,000 hours and four years free of flying accidents. However, the Phantom again began showing its age when the Navy limited it to four Gs in July, until an extensive wing structure inspection was carried out. This was finished in time for a deployment to Hill AFB, Utah, to fight USAF F-16s and F-105s in October. "Carquals" on the *Ranger* (CV 61) rounded out 1981, and Lieutenant Colonel Robert R. Renier, a Ghost veteran of the *Coral Sea* cruise, took over on 18 December.

*See Appendix F for full citation.

The year 1982 saw the squadron complete a remarkable 20 years of service in Phantom IIs, which now truly deserved the term, "antique." There was no letup, however, as the Ghosts deployed to the Marine Corps Air Ground Combat Center, Twentynine Palms, and then another two weeks at Tyndall Field in April. The F-4's swan song was a Red Flag exercise in the August heat of the Nevada desert, under a new commanding officer, Lieutenant Colonel James L. Lucas, who had taken charge on 10 July. There was not a single ground abort or maintenance cancellation during the two-week exercise.

On 1 October, the squadron assumed non-operational status, although tactical flights would go until late November. Fittingly, most of the last sorties were DACM against the top fighter models of the other Services. "The end of an era . . . was noted with great pride that at precisely 0800 on 24 November the last eight F-4Ns of VMFA-531 departed on their last flights as part of MAG-11 and 3d MAW," the Commanding General, 3d MAW, commented in his farewell message.[129] Now Lucas and the Ghosts would concentrate on the introduction of one of the most versatile aircraft ever to enter the Marine Corps' inventory, the McDonnell-Douglas F/A-18 Hornet.

Like many of its predecessors, the F/A-18 came to the Marines by a convoluted path. After the Marine Corps' elimination of the F-14 program, it was put in a difficult situation for a future fighter/attack aircraft. To get maximum flexibility, the Marines needed an aircraft that could perform both missions well.

One stopgap was the rebuilding of F-4Js into F-4Ss with maneuvering slats for improved turns, smokeless engines, and a digital version of the previous radar with a crude heads-up display. This was the best air-to-air Phantom ever made, and it would serve in the Fleet Marine Force (FMF) until 1989. The only other candidate was an evolution of the Northrop YF-17 twin-tailed, twin-engined fighter. McDonnell Douglas and Northrop agreed to joint production of a carrier-capable version, and it was designated as the F/A-18A Hornet.

A KC-10 tanker refuels a squadron Hornet on the long flight to Egypt in July 1985.

Photo courtesy of 1stLt Wesley Johnson, USMC

Although the Hornet would subsequently receive some (undeservedly) bad press as to its range and top speed—it was slightly slower than the F-4N—its good points were almost overlooked. They were many: superior agility, an advanced radar (the APG-66) with all flight and radar information projected onto the windscreen by a heads-up display, a high speed 20mm gun with a state of the art gunsight, and an improved bombing system with less dispersion.

The first Ghost pilots and maintenance people to become acquainted with the exciting new plane traveled up to NAS Lemoore, California. Lucas and his pilots were all back at El Toro by mid-July, having completed training in four and one-half months. The formal training program had been designed with individual programmed learning blocks and a full capability simulator. The latter was exotic enough to dramatize air-to-air visual combat in a domed enclosure, where the pilot sat in his cockpit and could "fight" various adversaries such as the MiG-21. These were projected onto the spherical screen along with terrain, horizon, runways, carriers, and clouds. To add even more realism, missile firings left a smoke trail and made a satisfying explosion when they contacted an "enemy."

The transition training went so well that MAG-11 directed that delivery of the first F/A-18 for VMFA-531 be moved up. On 8 June 1983, flight operations began with the Hornet at El Toro. At the end of August, all 12 Hornets were on board and the unit had stabilized at 22 officers and 250 enlisted men. Almost immediately, the Ghosts were in the thick of advanced tactics training against the Navy's adversary squadron and "Top Gun" planes from Miramar.

The introduction of the F/A-18 was ahead of schedule that the squadron now found itself short of flying funds. Even so, Lucas was able to scrape enough together to take six Hornets, 10 pilots, and 70 men to CFB Cold Lake, Alberta, Canada, to participate in Maple Flag XII on 10-24 September. The Ghosts were the first FMF unit ever to take part in this multi-national exercise, which was modeled on Red Flag with a European scenario. At the same time -531 sent the first two FMF Hornet pilots to attend the "Top Gun" course.

In October the new fiscal year began, and the squadron promptly flew a detachment to Hill AFB to fight Air Force F-16 Falcons. Here the Ghosts could take the measure of their new plane. They found that the F/A-18 was nearly as maneuverable as the Falcon, but had a distinct edge in weapons effectiveness with its Sparrows, Sidewinders, and 20mm guns.

Besides its sparkling performance, the F/A-18 would prove to be a quantum leap in reliability and "maintainability," compared to the Phantom. There was, however, a problem area with the failure to field a DECM package for the Hornet, so Phantom-era gear eventually had to be installed.

Overall the safety rate of the Hornet was turning out to be about three times better than the best year of the Phantoms. This was due to the aircraft's smooth handling characteristics, simplicity of operation (once the unfamiliar computers and information display were mastered), and the quality of initial training provided by the replacement training squadrons from the fleet.

At the end of November, -531 was visited by a legendary former commanding officer, a long-retired brigadier general named Harshberger. "Iron John" could not help but be impressed that at last there was an all-weather fighter that was as capable by day as it was at night. It had been a long, difficult road from the original PV-1!

Lucas was succeeded on 16 June 1984 by Lieutenant Colonel Manfred A. "Fokker" Rietsch, a colorful and aggressive fighter pilot with more than 600 F-4 combat missions in his logbook.* The Ghosts would now continue with an unusually high "full mission capable" rate of 90.7 percent during some challenging deployments. Red Flag in August was followed by another detachment to the USAF Aggressor School also at Nellis, and then on to serve as Marine participants in a practice operation which included long endurance missions with aerial refueling.

In late September, the squadron received a visit from the most senior former Ghost, Lieutenant General Keith Smith, who, as the Marine Corps' Deputy Chief of Staff for Air, sized up the unit for an interesting mission in 1984. He also congratulated Gunnery Sergeant Edward G. Robinson on winning the Marine Corps Aviation Association's Aviation Electronic Technician Award. In the tradition of Jack Bardon, Robinson had played a key part in keeping the Ghost Hornets' full-mission capable rate so high.

In April of 1985 Rietsch was notified that he

*Rietsch would later command the largest air group ever fielded in combat in Operations Desert Shield/Desert Storm in 1990-91, flying 184 combat missions himself.

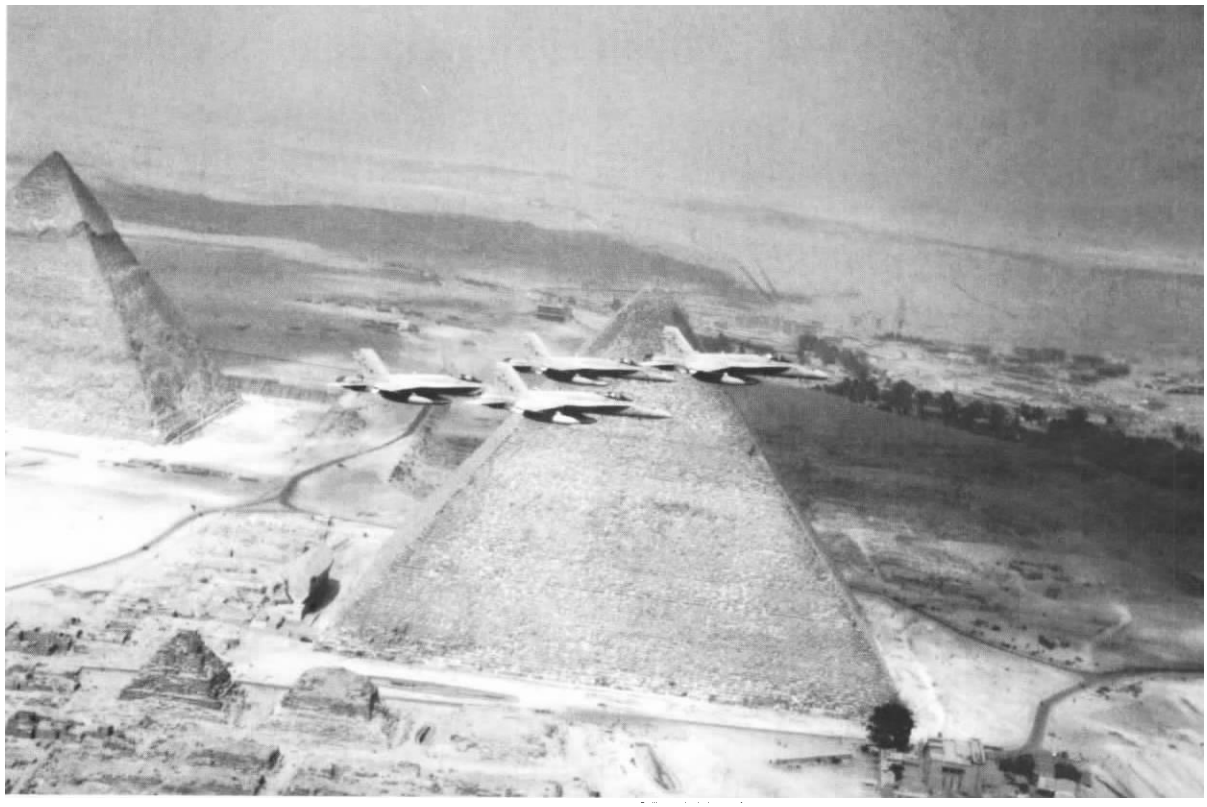

Photo courtesy of Col Robert F. Foxworth, USMC

F/A-18 Hornets of VMFA-531 overfly the pyramids during the July 1985 deployment to Egypt.

would lead VMFA-531 in the first Marine long-range deployment of the F/A-18 as part of a joint exercise. The Ghosts would become the first Marine squadron to deploy to a land base in the Middle East at Inshas, Egypt, about 30 miles north of Cairo. Lieutenant General Smith intended that this be an exercise to see if the Hornet could operate from an austere base without intermediate level maintenance support. Inshas easily met the requirement for such a bare base.

For the 6,700-mile deployment, 10 Ghost Hornets flew non-stop in late July to NAS Oceana, Virginia, using aerial refueling from Marine KC-130 tankers. After a short layover, they made the long 3,200-mile jump across the Atlantic to Spain in two flights of five Hornets, each of which had its own widebody USAF KC-10 tanker. Then the squadron flew independently in two legs to Inshas via Sicily. Once in Egypt, it was under USAF control and had to follow a rigid pre-planned schedule.

Inshas turned out to be like an oven, with daily temperatures up to 115 degrees. Line crewmen wore head covers, sun goggles, and neckerchiefs reminiscent of Rommel's Afrika Korps. The weather turned out to be surprisingly poor for a desert setting, with visibilities sometimes less than a half-mile in haze, fog, smoke, and dust in the morning. Although the field had a TACAN, it was unreliable, and at times the Ghosts found their multi-million dollar Hornet assets grounded for lack of a precision approach aid. What weather information there was to be had came from Arabic newspapers and radio stations.

Standard military jet fuel was not available, so kerosene-based commercial fuel was used. This gave the Hornet's engines no problems at all, and greatly mitigated the logistics problem of having to supply a particular military fuel. Another bonus was that, with the F/A-18's self-contained starting system, no auxiliary air starters or electric units were needed to launch. The full-mission-capable rate was also extremely high. Only 3.3 manhours of maintenance were required for each flight hour—an unimaginable statistic compared to the Phantom. As a result, the commanding officer could schedule all of his aircraft to be airborne at once, if he so chose, thus greatly multiplying the effect of his force.[130] Rietsch often so chose: "I never had an airplane down for more than five hours, and every one we had flew at least twice a day."[131]

There was a single manager of all air assets—the USAF—and for the Marines the greatest problem of this system cropped up in close air support. Of 30 such sorties, only eight were flown with a forward air controller, and the full close air support system was used only once. Clearly, close air support did not rank high in USAF priorities.

Hornets from -531 also provided fighter escort for A-6s and A-7s off the carrier *Nimitz* (CVN 68) in a fine display of their dual mission capability. From Inshas they would fight F-16s, Dassault Mirage Vs, and MiG-21s. One encounter involved 6-8 Ghost Hornets against 12-14 well-flown MiG-21s, whose pilots included some veterans of the Arab-Israeli wars. Most of the participants felt this alone was worth the trip.

The Secretary of the Navy, John Lehman, in an official Letter of Commendation to VMFA-531, said that the Inshas deployment "was flawlessly executed . . . . [in] demanding and complex air-to-air and ground missions . . . The Squadron displayed to all commands involved in the exercise the reliability, force projection, and sparse logistic requirements that a Marine F/A-18 aviation unit can provide to any potential battlefield."[132] These were prescient words: Marine Hornets—many flown by former Ghost pilots—turned in a superb performance in the Gulf Conflict of 1990-91.*

Returning home in mid-August 1985, the Ghosts did not stay put for long. There was a deployment to Hill AFB in October to fight the F-16s again, and two weeks at NAS Key West to perfect the art of air-to-air gunnery.

The F/A-18's 20mm six-barrel revolving cannon was a USAF development, and it was easily the best aerial gun ever used by the Corps. Gunnery was done with the radar and the heads-up display against the traditional banner which was towed. The pilot locked his radar onto the banner, which now appeared on the display. When a flashing "shoot" light from the computer indicated a good firing solution, the pilot fired anywhere inside of a 2,000 feet range, usually in a one-second burst at up to 6,000 rounds per minute. In 247 sorties and 49 missions, the Ghosts fired 61,185 rounds. The percentage of hits rose from 6.7 percent to 17.2 percent by the end. This was probably the best shooting in the squadron's history and, indeed, a skilled gunner could work his percentage up to 35-50 percent or more with practice.[133]

In March 1986, after 10 days at Yuma for air-ground ordnance training, -531 went back to Nellis for a Green Flag exercise (similar to a Red Flag, except it was run in a more sophisticated electronic environment). Rietsch complained that new restrictive rules of engagement prevented the Ghosts from conducting interceptions below 13,000 feet and "allowed only intercepts against adversary aircraft which were outnumbered by the F-18s." Thus he considered the training value of this Green Flag to be marginal. A complete lack of defensive electronic countermeasure gear was another negative.[134]

This was not the case in the deployment to Tyndall the next month; there the squadron flew 90 percent of its flights against adversaries from six USAF units "in our most valuable and cost-effective air-to-air training deployment [yet]."[135] Rietsch's last deployment with -531 was to Kingsley Field, Oregon, the site of a large USAF F-4 training operation for Air National Guard pilots. Like the Marine Corps Reserve, these pilots were more experienced than the regular forces on average, and they gave the Ghost Hornets a good workout in air defense tactics.

On 26 June 1986, Rietsch was succeeded by his executive officer, Lieutenant Colonel James L. Cieslak, a veteran of Inshas and many other Ghost deployments. This was in keeping with a new Marine Corps policy of having executive officers move up, in order to eliminate having a commanding officer who was not familiar with the unit or fully trained in the aircraft.

Cieslak was soon leading four Hornets on a mysterious mission to NAS Adak, Alaska, located on a desolate island about three-quarters of the way out the Aleutian chain. The ostensible reason for the detachment was to support a Marine landing exercise, and the Ghosts did do some GCI work with the task force. But the real reason was to fly actual barrier combat air patrols between Attu Island (the western most of the Aleutians) and the Soviet Union's Komandorskiye Island, while a U.S. Navy cruiser did some testing of the new Tomahawk sea-launched cruise missile eastwards along the chain.

This was followed by a deployment to the other end of the weather spectrum: El Centro, California, in August. There VMFA-531 served as the offensive air unit in a brigade-sized amphibious exercise. Then, in October, the Ghosts flew to

*See Appendix F for full citation.

Brigadier General Keith J. Stalder

Keith J. Stalder was commissioned a second lieutenant after completing Officer Candidate School in 1973. He graduated from the Basic School and was designated a naval aviator in February 1975. Assigned to further flight training with VMFAT-101 at Marine Corps Air Station, Yuma, Arizona, he received his designation as an F-4 pilot.

After initial F-4 training, he was assigned to Marine Fighter Attack Squadron 333, Marine Corps Air Station, Beaufort, South Carolina. He deployed on board the *Nimitz*, Carrier Air Wing 8, until February 1977. He was then transferred to Marine Fighter Attack Squadron 235, Marine Corps Air Station, Kaneohoe, Hawaii, in May 1978. While assigned to VMFA-235, he made several deployments as well as attended the Weapons and Tactics Instructor Course.

Following these tours, he reported to VFA-125, Naval Air Station, Lemoore, California, to fly the F/A-18 Hornet. He remained with VFA-125 as an instructor pilot until August 1984 and attended the Marine Corps Command and Staff College, Quantico, Virginia, graduating in June 1985.

He was next assigned to the 2d Marine Aircraft Wing to become the aircraft maintenance officer of Marine Fighter Attack Squadron 115 in Beaufort. While with VMFA-115, he made a number of deployments to Europe and the Far East. In early 1988, he was transferred to Marine Aviation Weapons and Tactics Squadron 1, Marine Corps Air Station, Yuma, as the operations officer.

In June 1990, he was assigned as the Commanding Officer, Marine Fighter Attack Squadron 531, 3d Marine Aircraft Wing, El Toro, California, deploying to WestPac in 1991. At the completion of this tour, he attended the NATO Defense College in Rome, Italy, then reported to Headquarters, European Command, Stuttgart, Germany. There he served as the operations division chief for the military-to-military contact program for Central and Eastern European and the former Soviet Union.

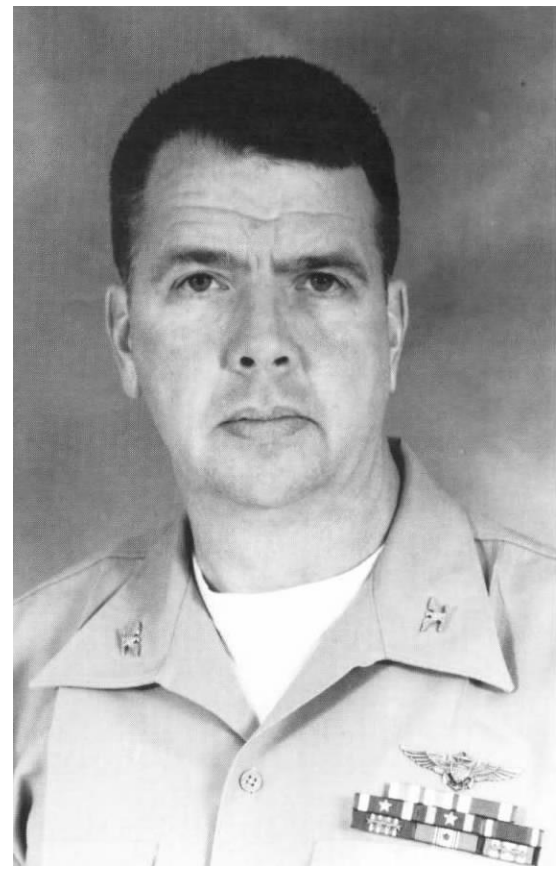

Photo courtesy of Col Keith J. Stalder, USMC
Then Col Keith J. Stalder.

Returning once more to Yuma, Colonel Stalder served as the commanding officer of Marine Aviation Weapons and Tactics Squadron 1. Promoted to brigadier general, he became Assistant Wing Commander, 3d MAW, in 1998.

Tinker AFB, Oklahoma, to act as adversary air against USAF F-15s and F-16s.

The fast pace continued into 1987 as the squadron prepared intensively for its first WestPac duty on land in 22 years. There also was a steady stream of deployments: El Centro, Yuma, Point Mugu, Hill AFB, Miramar, and Kingsley Field. At Fort Hood, Texas, the Ghosts provided night deep air support to the Army, using laser and forward-looking infrared target designation and acquisition. All of these deployments were in the first six months of 1987, in what was supposed to be a "garrison" training stage.

The second half of the year was more of the

Department of Defense Photo (USMC) DMST 9300334

PFC Dwayne Dickey, plane captain, signals to 2dLt Troy D. Kehoe in an F/A-18A Hornet as the squadron made its final deployment to Marine Corps Air Station, Yuma, in early 1992.

same. The squadron did another Red Flag, and then 10 days of aerial gunnery off Point Mugu, besides sending pilots to "Top Gun" courses. In October, the Ghosts operated from an expeditionary airfield in support of a large exercise while living under canvas. This was to be excellent practice for what would soon come in Korea.

In November, a detachment was sent to Miramar for DACM. On the 17th, one of the rear echelon F/A-18s was operating over water when the pilot, First Lieutenant Thomas A. Drechsler, then heard the computerized female voice warning: "Engine fire left! Engine fire left!"* After his wingman confirmed he actually had a fire—in fact it was a catastrophic engine failure—Drechsler ejected and splashed down in the chilly Pacific Ocean. By great fortune, a Navy helicopter located him in the moonless dark.

There had been several other mysterious engine fires in the F/A-18, which marred its otherwise superior safety record. The ensuing engine and airframe modifications put a distinct crimp in flight operations in the spring of 1988. Before Cieslak could lead his dozen Hornets to the Far East, "we first had to rebuild the airplanes. I mean we had to change every engine, every stabilator, and every [leading edge flap]. It took three months."[136]

Finally, on 19 April 1988, the Ghosts made the TransPac trip, with KC-10 aerial refueling, via Kaneohe and Wake Island, arriving at Yechon AB, Korea, on the 24th. This was the first VMFA-531 participation in the Marines' unit deployment program (UDP), in which units were sent overseas for two six-month periods with a year in between. These UDP deployments were phased with ground units for maximum cohesiveness. And with numerous stateside deployments a way of life for many squadrons, this was also one way of cutting down on lengthy family separations.

Yechon was an austere base in Korea. Here the Ghosts would spend their longest period under canvas since World War II, living in a leftover tent compound. For the first time on an overseas tour, women would be part of VMFA-531. Captain Jo A. Bell, a maintenance specialist,

*The computerized voice warning system was universally dubbed "Bitching Betty" by F/A-18 pilots.

was the senior woman on board. Other female Ghosts would perform any and all of the VMFA occupational specialties, including physically demanding jobs such as ordnance loading. However, women were excluded from aviator MOSs during this time, because the Marine Corps was not authorized to use women on board ship.

The early months at Yechon were a trial, with below freezing temperatures and—later on—monsoon rains, but the squadron learned to live on sandbags and pallets to keep dry. Parts resupply was another problem, since the USAF logistics plane landed some 80 tortuous road miles away. As usual overseas, there were many flying challenges in DACT with Korea-based planes, in air-ground ordnance delivery on nearby ranges, and in simulated close air support near the Demilitarized Zone with controllers in USAF OV-10s.

The highlight of the WestPac tour was a one-month detachment to Thailand to participate in an exercise beginning in early July. Cieslak led his flight of six Hornets via Cubi Point and then across the South China Sea with refueling help. Unlike the last Ghost flights over these waters, navigation was not a concern, thanks to the F/A-18's highly accurate inertial guidance system The Ghosts were billeted at the barracks of the Royal Thai Marine Corps, a unique chance to meet and live with Marines of another country.

The exercise included both air defense and offensive missions in support of the 15th MEU.* The squadron flew numerous DACT missions with F-16s and F-5s. Unfortunately, the Hornet's engine problems were by no means over, and another sudden failure struck again on 26 July over Thailand. First Lieutenant David J. Schmarr handled the emergency perfectly, and was able to land his plane safely, saving the aircraft.

VMFA-531 now returned to Cubi Point, where it left four Hornets for a month's worth of defensive ACM training. Cieslak made sure the duties for all Ghosts were rotated, so that everyone could get a chance to operate in various locations. On 7 October, the squadron turned their Hornets over to VMFA-323 and flew home on a chartered plane to El Toro. Once again the Ghosts had demonstrated their ability to operate effectively from a forward base with minimal support.

On 27 October 1988, Ciesiak concluded his 28-month tour as commanding officer—the longest of any Ghost skipper—and handed over the colors to his executive officer, Lieutenant Colonel John F. "Hustler" Goodman, a former U.S. Army infantryman with a Bronze Star and Purple Heart from Vietnam. Goodman would now take -531 through the workup for a second deployment to WestPac. In July of 1989 the Ghosts passed the first part of their readiness tests, and then deployed for two weeks at McChord AFB, Washington, for DACT with a USAF squadron in August. In September there was a no-notice missile shoot to complete their readiness tests.

Back to WestPac

On 3 October 1989, the Ghosts embarked once again for WestPac in 12 Hornets via Kaneohe and Wake. They arrived at Iwakuni, Japan, and were immediately tasked with close air support missions in a practice exercise. In late October an eight-plane detachment went down to Kadena AB on Okinawa for a joint USAF-USMC air defense exercise. On 28 November, the Ghosts passed six years and 34,000 hours free of chargeable flying accidents, an enviable record for a fighter attack squadron.

Then, on 15 December, 12 of the squadron's Hornets took off from Kadena. Thus, the new year of 1990 found the Ghosts practicing air-to-air gunnery at Cubi Point, where they had been 10 years earlier. That was coupled with DACT for a two-week period involving USAF and Navy pilots. Returning to Iwakuni on 1 February, the squadron participated in a variety of missions; more DACT, armed reconnaissance, fighter escort, "war-at-sea" scenarios, simulated airfield attacks in Korea, and mine laying.

Moving into March, -531 carried combat loads of missiles and 20mm ammunition in a series of "intercept and escort" missions with snooping Russian bombers. The Commander, U.S. Seventh Fleet, sent congratulations: "well done for exceptionally professional intercept and escort services . . . . Your 100 percent on station reliability and timely intercept of all real world contacts provided valuable protection to the battle group. . . . The Marines have flown, and the situation is well in hand."[137]

Another Ghost milestone was passed on 15

*The term "expeditionary" was reinstated in Marine task force designations, replacing "amphibious." MAUs now became MEUs (Marine Expeditionary Units).

March with what were now labeled "mishap free flight hours" totaling 36,000. This was quickly followed by notification that -531 had been selected for the 1989 Chief of Naval Operations Safety Award.[138]

The squadron then redeployed to El Toro on 10 April. In spite of the usual high turnover in personnel folowing a WestPac deployment, as soon as it arrived, it was ordered to participate in a MAG-11 "minimum notice" readiness exercise. The next months saw a wide range of training missions, including preparations for nuclear, biological, and chemical threats. In May, one pilot, Captain Russell M. Smith, was chosen to attend the "Top Gun" class at NAS Miramar for a month.

There were close air support missions with the 1st Marine Division at Twentynine Palms in June, as well as a detachment sent to test a new radar at Luke AFB in Arizona. The month concluded with the arrival of a new commanding officer on 29 June, Lieutenant Colonel Keith J. "Shadow" Stalder.

In August, during a joint deployment with VMFA-121 at NAS Fallon, Nevada, the dramatic news was flashed that Iraq had invaded Kuwait. Speculation about the U.S. reaction was rampant. As Stalder later wrote:

LtCol Keith J. Stalder enjoys a smile with Maj Wendy A. Smith, aircraft maintenance officer of Marine Aviation Weapons and Tactics Squadron 1 in Yuma.

Photo courtesy of LtCol Keith J. Stalder, USMC

> I expected and hoped that we would go to war, but I knew that we would need more airplanes to do it. After a few days, the decision was made to deploy MAG-11, but -531 and -121 would remain behind because we were not combat ready for airplanes. Needless to say, we were all very unhappy. To add insult to injury, we then became the donor of airplanes, people, parts, tools, and everything else for the squadrons that were going to the Gulf. We all knew it was the right thing to do, but it hurt to see everything going out the door piecemeal when we couldn't go ourselves. I went to Colonel Reitsch (MAG-11 Commander) and Colonel Forney (Assistant Wing Commander, 3d MAW), and begged them to take us to the war. The decision was above even their pay grade, and we were stuck in the U.S. while others went to the Gulf.[139]

It was a very difficult time for the Ghosts. All they could do was keep training and hope. With only three to four aircraft, Stalder sadly noted that "with 25 pilots it was tough to stay minimally safe, let alone ready to go to the Gulf, but we tried as hard as we could."[140]

Slowly, however, the squadron started to rebuild, and this led to a productive deployment to MCAS Yuma in October. During that fall, Stalder recalled that he "mounted a campaign to go WestPac. The -323 [a sister VMFA squadron] had been there well over the six months 'normal' tour, and it needed to be replaced. I hoped we'd get to the war from Iwakuni, and I knew that we'd just keep being stripped if we stayed in El Toro. There was good support for this by MAG-11 and 3d MAW, and we began to plan a deployment to Iwakuni for February 1991 with six aircraft (that was still all we could get)."[141]

Again it appeared that the squadron's hopes were fruitless when it had to contribute a new wave of men, parts, and equipment in December to units in the Gulf. Morale sank; WestPac looked like it would never materialize. But the situation brightened at the end of 1990, and January 1991 saw a concerted effort to prepare for a long-awaited TransPac deployment. A key part of this was qualifying for refueling from the KC135 tankers that would be used.

With -531's chronic shortage of planes, the solution was to fly six out and then pick up seven

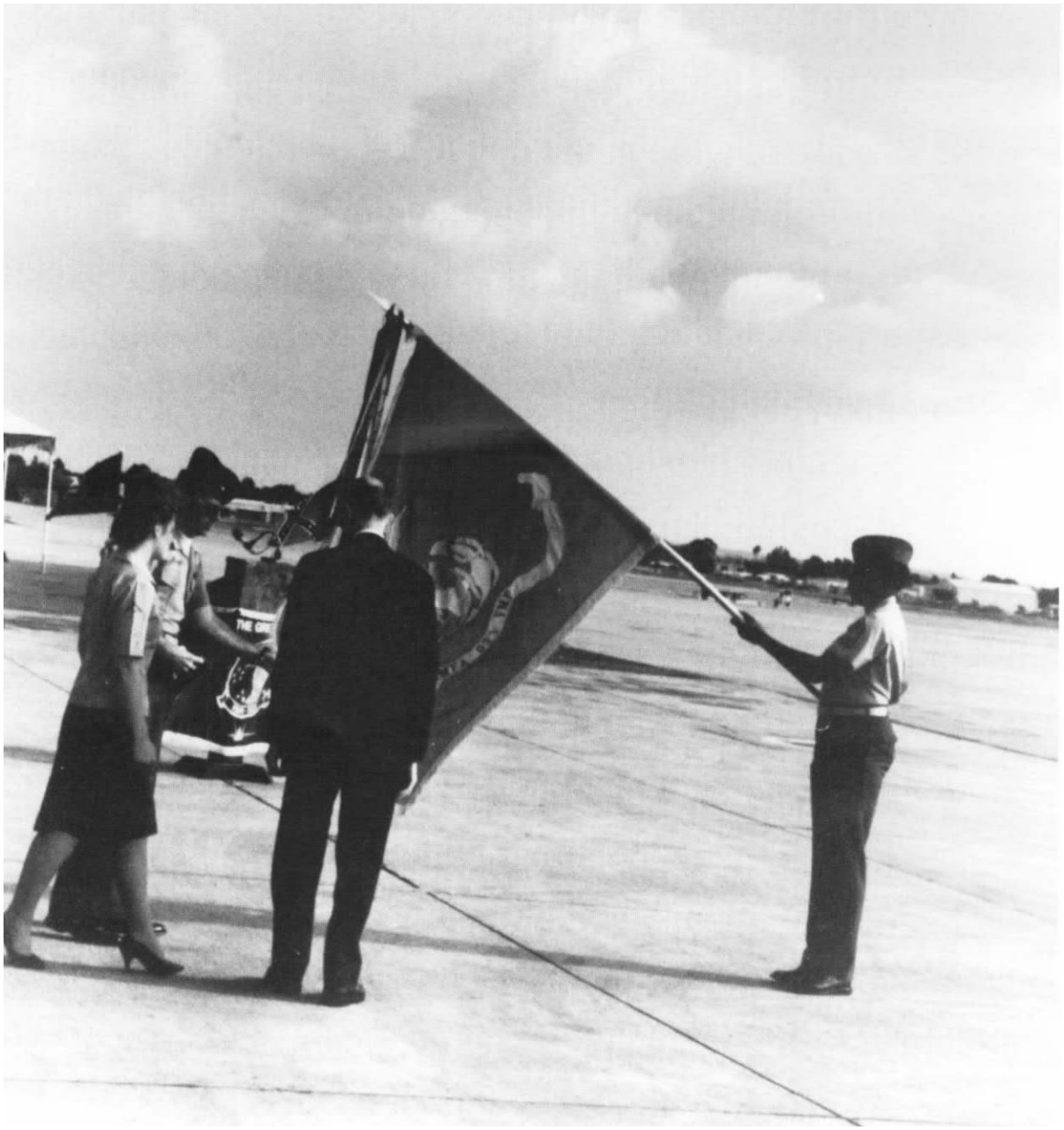

Photo courtesy of 1stLt Wesley Johnson, USMC

LtCol Keith J. Stalder, LCpl Lorrise Soderquist, the squadron's newest Marine, and retired LtGen Keith Smith, former VMFA-531 pilot and its oldest alumnus, retire the squadron's colors.

more from -323 as it left Iwakuni to return to El Toro. Both the commanding officer and all hands in -531 were "very happy to get out of El Toro" with the lurking hope that being brought up to strength and being overseas might lead to assignment to the Gulf War. On 10 February, the Ghosts passed the 40,000 mark in "mishap free flight hours." Congratulations and praise came from Major General Royal N. Moore, Jr., Commanding General, 3d MAW, from his command post at Jubail, Saudi Arabia.[142]

At long last, on 13 February, the six remaining planes of VMFA-531 flew off for Iwakuni, the Ghosts' third WestPac deployment in three years. As part of MAG-12, 1st MAW, it was barely settled when it went back to Cubi Point for a two-month training stint. This encompassed air-to-ground firing, electronic warfare, DACT, and CAS missions.

Photo courtesy of Maj William Henson, USMC

The squadron named El Toro, its long-time home, "Ghost Town."

After its return to Iwakuni on 26 April, the DACT continued, this time against planes of the Japanese Air Self Defense Force. After only a month, the Ghosts moved again (25-26 May) to NAF Kadena for air-to-air gunnery practice, air-to-air intercept training, and more close air support missions. June saw the sought-after certification of some squadron pilots as "air combat training instructors."

The Ghosts thought they had seen everything in the long, eventful history of -531, but they had never experienced anything like the event of 12 June. On that day Mount Pinatubo erupted in the Philippines and buried much of Cubi Point under two feet of volcanic rock and ash. This stranded two squadron aircraft and a small detachment of men. Their following labors were monumental. Almost every hangar and building on the flight line, except for the one housing the two Hornets, had collapsed, crushing whatever aircraft occupied them. The Marines of VMFA-531 kept a constant vigil, shoveling off roofs, digging a path to the runway, and completing the required maintenance to get the F/A-18s out of Cubi. Within two weeks the Ghosts were free. For their superior performance in the Philippines, the squadron was included in the award of a Meritorious Unit Commendation to Marine Air-Ground Task Force 4-90.*

More DACT against USAF F-15 flights was the focus in early July, along with KC-135 tanker qualifications. Then came a move back to Iwakuni on the 14th, with preparations for a return to the United States. On 8 August, most of the -531 personnel left on a civilian airliner (called a "main

*See Appendix F for citation.

body movement"), and then on 15 August an unprecedented 16 F/A-18 aircraft of VMFA-531 flew out on what the pilots called "The Mother of all TransPacs."[143] They went with a personal communication from MAG-12 to Stalder which said:

> Shadow: The performance of the "Grey Ghosts" of VMFA-531 while assigned to 1st MAW/MAG-12 was nothing less than outstanding. Without doubt, the Ghosts are the best fighter/attack squadron I have had the privilege to serve and fly with over the past year. . . . The Ghosts are truly exceptional. . . . You spent less time in Iwakuni than the law allows, and managed to do more than many squadrons in the past. . . . Shadow, you can be proud of the accomplishments of the Ghosts.[144]

The Final Chapter

Once safely back at El Toro, the life of the squadron for the remainder of 1991 was "more of the same": a strike at NAS Fallon, Nevada, DACT with F-14s, CAS at Twentynine Palms, and something new, with the quaint title of a "MAG-11 Bombing Derby."

Another milestone in safety came on 17 November, as -531 chalked up its eighth "mishap free" year. This brought a "Bravo Zulu" from the Commanding General, 3d MAW:

> As you enter your 50th consecutive year of service to the fleet, your commitment to safety is evidenced by pride and professionalism. Over the past eight years your exceptional can-do attitude and outstanding operational readiness have resulted in 43,780 class-A mishap-free flight hours. During your most recent tour in WestPac, including an unprecedented 16 aircraft TransPac, you once again demonstrated your mettle: your world-wide reputation of professional excellence is well-deserved and is certainly evident in your outstanding safety record.[145]

This marked what would prove to be a final flourish for a squadron that had rung up a remarkable half-century record in a world war, three other wars, and cold war crises.

As the squadron resumed training in 1992 at El Toro, the budget cutters' axe loomed large over the Marine Corps. Sadly, it became necessary to deactivate two squadrons, and VMFA-531 was one of them. The official message was typically sparse in its wording:

> The term deactivation is defined to mean the elimination of personnel structure. Units were selected for deactivation based on squadron history, length of service, participation in campaigns and operations, honors, award citations, and deployment cycles. . . . On 31 March 1992 VMFA-333 and VMFA-531 will be deactivated. This action is required to meet FY92 end strength reductions.[146]

It was a crushing blow. Stalder spoke for everyone in the squadron when he said: "The decision to deactivate the Ghosts hit us all hard, to say the least. I tried unsuccessfully to have the decision reversed, but the politics would not permit it."[147]

Deactivation was a complex process—a procedure for which none of the Ghosts were prepared. January 1992 marked the beginning of a concentrated effort by Stalder to obtain good future assignments for all the personnel of his squadron. This was not easy: "It seemed as though everyone in MAG-11 wanted a piece of -531 to fill a hole they had."[148] However, with the help of the commanding officer of MAG-11, the Ghosts were able to focus on training as many pilots as possible to qualify as air combat tactics instructors. Thus, they would have the best qualifications for their next duty post.

The process of winding down was painful. There were "aircraft transfers on 12 February, and one by one Marines checked out. . . . By the end of the month the squadron was down to eight pilots, eight aircraft, and less than 50 percent of the enlisted troop strength."[149]

The accomplishments of -531 were glowingly summarized by a formal resolution of the State of California. It spelled out highlights of the long history of the squadron and concluded "VMFA-531 has built a record of achievement, readiness, and espirit that is second to none."[150]

Then the end came. On 27 March 1992, there was an emotional deactivation ceremony at "Ghost Town," El Toro. "This is sad to see," said Staff Sergeant Doran Scott, intelligence chief for VMFA-531. "It's sad to see 50 years just go away. We just got back from a successful overseas tour. No one was prepared for this."[151]

The squadron had finished off with 45,000

hours and more than eight years of mishap-free flight. It was the only squadron in the Marine Corps to have had 50 years of continuous service successively in night fighter, all-weather fighter, and fighter attack missions. Its standard bore streamers for a Presidential Unit Citation, a Navy Unit Commendation, two Meritorious Unit Commendations, and a number of campaigns. Following a narration of Ghost history, there were remarks by the senior Ghost alumnus, Lieutenant General Keith A. Smith, and the final squadron commander, Lieutenant Colonel Keith J. Stalder. Then the colors were retired, marking the end of one of the Marine Corps' most storied squadrons.

On 31 March came the final act. Stalder flew out the last F/A-18A to Point Mugu, California, and it was all over. The long-time home for the Ghosts had truly become "Ghost Town."

Notes

Facing the Problem

The principal primary source materials used in preparation of this history are held by the History and Museums Division, Headquarters U.S. Marine Corps, Washington, D. C., hereafter Hist&MusDiv, and can be seen at the Marine Corps Historical Center (MCHC), Building 58, Washington Navy Yard, Washington, D.C. Records of personal interviews conducted by Col Quilter for this history are in his possession. Unless otherwise noted, all quotations are from the squadron War Diary, Historical Report, or Command Chronology, as appropriate.

1. CMC (DivAvn) ltr AA-303mj to Maj F.H. Schwable, Subj: (missing), 31Jan42 (in possession of BGen Schwable).

1942: Getting Started—
Washington and Cherry Point

Unless otherwise noted, the material in this section is taken from an unpublished manuscript by Maj William W. Moore, USMC, "Under the Cover of Darkness: A History of the First Marine Night Fighter Squadron in World War II," 1981, located at MCHC, Washington, D.C., hereafter Moore ms.

2. CNO ltr OP-12F-DRC/ (SC) A21-1 to All Bureaus and Offices of the Navy Department, Subj: 27,500 Plane Program—Further Allocation of Airplanes, 28Mar42. Quoted in Moore ms.
3. CMC ltr AA 365-pmk to CNO, Subj: Night Fighters, Marine Corps, 12Jun42. Quoted in Moore ms.
4. BuAer Endorsement Aer-PL-23-IJE over VF, KV of CMC ltr AA 365-pmk to CMC, I 3Ju142. Quoted in Moore ms.
5. Vice CNO ltr OP-40-A-KB over (SC) A21-2 to CMC, Subj: Night Fighter Squadrons, Authorization of, 25Ju142. Quoted in Moore ms.
6. Maj F.H. Schwable memo to Director of Aviation, HQMC, Subj: Organization of the First VMF Night Fighter Squadron, 27Ju142.
7. BGen Frank H. Schwable, Transcript of intvw (OralHistColl, MCHC) Hist&MusDiv, HQMC, 18/25Apr80.
8. BGen Homer G. Hutchinson, Jr., untranscribed taped intvw with Col Quilter and Benis Frank, 10Oct86 (OralHistColl, MCHC).
9. LtCol F. H. Schwable ltr A4-3/ A3-1(1) to CMC, Subj: Commissioning Date VMF(N)-531 Request for Advancement, 24Oct42. Quoted in Moore ms.
10. CMC (Adjutant and Inspector) ltr AD-288-rs over 07J 31042 to LtCol F. H. Schwable, Subj: Commissioning Date of VMF(N)-531, 6Nov42. Quoted in Moore ms.
11. CO VMF(N)-531 msg to CMC 161345Nov42. Quoted in Moore ms.

Growing Pains at Cherry Point

Most of the material in this section comes from an unofficial command diary called the "Squadron Log" kept by LtCol Schwable from 16Nov42 until 1Ju143. From 1Aug43 onward, the principal source is the VMF(N)-531 War Diary stored in Box 51, Accession No. 64A-3731 in the National Archives, Washington, D.C. Unless otherwise noted, all quotations to 1Ju143 are from the Schwable Command Diary and after 1Aug43 from the War Diary. The principal oral sources were interviews by Col Quilter of BGen Frank H. Schwable, USMC (Ret) on 14Oct86 and 18-19Jan87 and BGen John D. Harshberger, USMC (Ret), on 31Dec86, hereafter Schwable intvw and Harshberger intvw.

12. BGen H.G. Hutchinson telcon to Col Quilter on 16Oct86.
13. Gordon Swanborough and Peter M. Bowers, *United States Naval Aircraft Since 1911* (New York: Funk and Wagnalls, 1968), pp. 69-70.
14. Robert Sherrod, *History of Marine Corps*

Aviation in World War II (Washington: Combat Forces Press, 1952), p. 160, hereafter Sherrod, *Marine Corps Aviation in WWII.*
15. 1stSgt James L. Sankey intvw with Col Quilter, 19Nov43. Sankey served from private first class to sergeant as a turret gunner with the squadron Jan43-Oct44.
16. Sherrod, *Marine Corps Aviation in WWII,* pp. 447, 473-474.
17. Ibid, p. 162.
18 CO VMF(N)-531ltr to CG MarFAirWest, Subj: Report of Readiness, Forward Echelon, 30Ju143 (in WarD file).

To the Solomons and War

Primary sources for this section are the War Diary and interviews. Other sources include the files of Fighter Command, Commander for Air, Solomons (Task Unit 33.1.3) located in Box 59, Accession 64A-3731, at the National Archives. Secondary sources for the Solomons campaigns include Sherrod, *Marine Corps Aviation in World War II,* Henry I. Shaw and Douglas T . Kane, *The Isolation of Rabaul* (Washington: HistBr, G-3 Div, HQMC, 1963), and W.F. Craven and J.L. Cate, eds., *The Army Air Forces in World War II—The Pacific: Guadalcanal to Saipan Aug42-Ju144,* vol IV (Washington: Office of Air Force History, reprinted 1983).

19. BGen Frank H. Schwable intvw w/Benis Frank, 18Apr80, pp. 112-114 (OralHistColl, MCHC).
20. Sherrod, *Marine Corps Aviation in WWII,* pp. 170-174.
21. CinCPacFlt ltr Pac-62-cd/AT-1 Serial: 3655 to SecNav, Subj: Night Fighter Squadron Seventy Five, Availability for publicity purposes, 2Jun44. Copy provided by Operational Archives Branch, Naval Historical Center, Washington, D.C.
22. Harshberger intvw .
23. CO VMF(N)-531 to CMC, 25Nov43.
24. CO VMF(N)-531 ltr to CMC, Subj: Report of Marine Night Fighter Squadron Operations in the South Pacific, 25Feb44 (in WarD file).
25. War Diary, 3-4Dec43.
26. ComAirSols OPLAN 1-144 para (3) (c), 28Jan44, delineates FtrCmd's night fighter mission. Located in Box 65, Accession 64A-3731, National Archives, Washington, D.C.
27. CinCPacFlt ltr Pac-62-cd/ AT -1 Serial: 3655 to SecNav, Subj: Night Fighter Squadron Seventy Five, Availability for publicity purposes, 2Jun44. Copy provided by Operational Archives Branch, Navy Historical Center, Washington, D.C.
28. 12Jan44 Action Report.

February 1944 Climax

29. Harshberger intvw.
30. ACA-1 #10, 16Feb44.
31. ACA-1 #11, 16Feb44, and LtCol Jack Plunkett intvw with/Col Quilter, 23Jun87.
32. On 18Dec44 SecNav in ltr 44-1421 initiated a Strike Flight Air Medal/Distinguished Flying Cross award system to conform with the USAAF, which had been resented by the comparatively much less decorated USMC flyers. In this system, an Air Medal was awarded for each five missions and a DFC every twentieth mission. On 18Apr46, CinCPac in ALPAC/126 made these awards retroactive to 7Dec41. Based on this Schwable was additionally awarded 10 Air Medals and three Gold Stars in lieu of an additional DFC in 1946 for his combat flights.
33. Schwable intvw.
34. Ibid.
35. Comments in ACA-1 #12
36. ACA-1 #13, 2-3Mar44.
37. ACA-1 #14, 13Mar44.
38. Harshberger's Aviators Flight Log Book.
39. ACA-l #15, 10-11May44.
40. Sgt John Barna ltr to MCHC, 12Dec90.
41. Intelligence Div, SoPacFor, U.S. Pacific Fleet, Combat Experiences of VMF(N)-531, 28Apr44, based on report by Col F. H. Schwable (Bx 181 2B42, Personal Papers Coll, MCHC, Washington, D.C.).

Tigercats in Texas and China

Primary sources for this section are the War Diary.

42. Henry I. Shaw, Jr., *United States Marines in North China, 1945 -1949,* (Washington: HistBr, G-3 Div, HQMC, rev. 1962), pp. 4-20.
43. Capt W.E. Scarborough, USN (Ret), *Tigercat in Action* (Carrollton TX: Squadron Signal, 1986), pp. 19-43. MTSgt (non.) Schoenberger, MAG-53, USMC, Group Operations Memorandum No.49-1946, (MCAS Cherry Point NC: 18Sep46), in MAG-53 War Diary file. Also Capt E.S. Holmberg intvw with Col Quilter, 13Nov89, and Maj T.H. Ullom intvw with Col Quilter, 7 Apr87.

Postwar Survival at Cherry Point

Primary sources for this section are the War Diary and semi-annual Historical Reports for VMF(N)-531 and its parent groups MAG-53 and MAG-24. Historical Reports succeeded the War Diaries in 1946.

44. Sherrod, *Marine Corps Aviation in WWII*, pp. 422, 434.
45. Col Paul A. Noel memo to Capt John C. Chapin, 18May98.
46. BuAer, USN, Pilot's Handbook of Operating Instructions for Navy Models of F6F-3, F6F-3N, F6F-5, F6F-5N Airplanes AN 01-85FB-1, (Washington: 1Jun44)
47. Sample abbreviated GCA talkdown recreated by Col Quilter, using NavAer, Navy Pilots Information File NavAer 00-80T-33, (Washington: Jun49), para 5-2, pp. 9-10. Official "average" GCA minimums were given as "100 foot ceiling and 1/2 mile visibility."
48. LtCol R.O. Bisson ltr to CG AirFMFLant, Subj: Rpt of Formal Night Intercept Exercise, 7Aug47 (in War Diary/HistRpt file).
49. *531 Grey Ghosts*, Marine Corps Aviation Assoc., *Ghost Lore*, 1995-6 Vol., Issue No.3, p. 6.
50. Steve Ginter, *Douglas F3D Skyknight, Naval Fighters No.4* (Simi Valley, CA: Ginter, 1982), pp. 2-3.
51. CO VMF(N)-531 ltr to CO MAG 11, Subj: Second Task Fleet, Rpt of, 19Mar48 (in HistRpt file).
52. CG AirFMFLant ltr to CO VMF(N)-531, quoted in HistRpt for 1Jan50-30Jun50.
53. Quoted in HistRpt for 1Jan50-30Jun50.
54. Accident board quoted in HistRpt for 1Jan50-30Jun50.
55. DAF, USAF HistDiv, *United States Air Force Operations in the Korean Conflict, 1Nov50-30Jun52*, USAF Historical Study No.72 (Maxwell AFB AL: Air University, 1Jul55), pp. 58-59.
56. Maj T.H. Ullom intvw with Col Quilter, 26Sep87.

Enter the Jets: The Skyknight

Primary sources for this section are the squadron's semi-annual Historical Reports, which end in 1954 when the requirement for such reports terminated. These are supplemented by interviews and articles from MCAS Cherry Point's base newspaper, *The Windsock*, microfilm copies of which are located in the archives at MCHC. Dates are taken from flight crew logbooks and the Unit Muster Roll. Squadron records before 1950 are in the National Archives, and subsequendy are in the National Records Center in Suitland, MD, with the more recent ones at the MCHC.

57. BuAer, USN, Pilot's Handbook, Navy Model F3D-2 Aircraft (AN 01-40FAB-1), 1 Dec54.
58. DAF, USAF HistDiv, *United States Air Force Operations*, p. 80.
59. Quoted in HistRpt for 1Ju152-31Dec52.
60. "Accelerated Carrier Suitability Tests," 13Feb52, quoted by Ginter, *Douglas F3D Skyknight*, pp. 13-14.
61. Quoted in HistRpt for 1Ju153-31Dec53.
62. BuAer, USN, Pilot's Handbook, Navy Model F3D-2 Aircraft, pp. 65-72.
63. Col L.P. Hart intvw with Col Quilter, 11Oct86. Maj Hart was operations officer of the squadron in 1953.
64. USAF/Air Defense Command, *A Chronology of Air Defense 1914-1961* (ADC Historical Study No.19), (Historical Division, Office of Information, HQ, ADC, nd.), p. 36.

Skyrays to WestPac

No Historical Reports or Command Chronologies exist, nor were they required during this period. Events were reconstructed from *The Windsock* articles, interviews, and the "cruise books" which were produced by the squadron for the two Skyray WestPac deployments. Dates are taken from the Unit Diary and pilots' logbooks.

65. LtCol Gordon E. Gray intvw with Col Quilter, 2Jan88.
66. NAVWEPS, USN, *Flight Handbook, Navy Model F4D-1 Aircraft* (NAVWEPS 01-40-FBA- 1, Washington: 1Nov57), hereafter NAVWEPS, *Flight Handbook, F4D-1.*
67. Capt G.G. O'Rourke, USN (Ret), "The F4D 'Ford': A Better Idea?," *U.S. Naval Institute Proceedings*, (Jun86), p. 124. See also the F4D's designer's reply in *Proceedings* (Feb87) p. 80.
68. USAF / Air Defense Command, *A Chronology of Air Defense 1914-1961*, p. 54.
69. NAVWEPS, *Flight Handbook, F4D-1*, Section 1.
70. BGen Henry W. Hise intvw with Col Quilter, 11Oct86, and ltr to Col Quilter, 12Oct86.
71. CG AirFMFLant ltr to CMC (Code AAJ), Subj: Deployment of Marine All-Weather Fighter

Squadron 531, 12Dec58.
72. NAVWEPS, *Flight Handbook, F4D-I*, Section 1.
73. Col Emmons S. Maloney intvw with Col Quilter, 24Sep87.
74. Maj E.M. Oster, quoted by Col J.M. Verdi in ltr to Col Quilter, 18Oct86.
75. Capt D.C. Escalera (ed.), *Marine All-Weather Fighter Squadron 531* (1960-62 Cruise Book).
76. MajGen William B. Fleming intvw with Col Quilter, 25Nov89.

Phantom and MiGs Over the Florida Straits

77. LtGen Keith A. Smith intvw with Col Quilter, 21Jan87.
78. *The Windsock*, 14Sep62.
79. LtCol Robert F. Foxworth intvw with Col Quilter, 11Oct86.
80. Ronald T. Pretty (ed.), *Jane's Weapon Systems 1977* (London: Jane's, 1977), p. 169.
81. Smith intvw. Limitations from *CNO, NATOPS Flight Manual, Navy Model F-4B Aircraft* (NAVAIR 01-245FDB-1, Washington: 1Nov66). Both Mach and airspeed limits were rather easily exceeded in this configuration.
82. Maj Robert J. Divoky intvw with Col Quilter, 3Dec89.
83. LtCol Ray L. Hanle intvw with Col Quilter, 30Nov89; Capt Frank H. Schwarz, Jr., intvw with Col Quilter, 17Jan88; and Maj Robert J. Divoky intvw with Col Quilter, 2Dec89. Quotes are from Schwarz'.
84. "Next Time Shoot, JFK Says," *Miami Herald*, 22Feb63
85. MajGen Michael P. Sullivan intvw with Col Quilter, 30Dec87; Capt Charles C. Taylor intvw with Col Quilter, 13Jan88.
86. Hanle intvw.
87. LtCol Orey E. Cory ltr to MCHC, 20Jan91.
88. Hanle and Taylor intvws.
89. 1stLt Wesley D. Johnson ltr to MCHC, 9Jan91.

Phantoms to WestPac

90: Capt G.F.R. Hanke, ed., *VMFA-531 1964-1965: Far East Cruise* (Daito, Tokyo, 1965), p.1.
91. "VMFA-531 Returns from Carrier Training," *The Windsock*, 3Apr64.
92. CNO, *NATOPS Flight Manual, Navy Model F-4B Aircraft*, pp. 3: 31-35.
93. CG 3d MAW ltr to CMC (Code A03E), Subj: 3d MAW Special Report 302-64 (U), 6Aug64. Located in Classified Files, MCHC.
94. Hanke, p. 50.
95. Smith intvw. The photograph hung in the bar of the MCAS El Toro Officers' Club for more than 20 years.
96. Hanke intvw. Quotes are Hanke's.
97. This near-disaster led to a full-scale interchange of formal correspondence between McGraw, as commanding officer of -531, and higher echelons. At issue was the squadron standard practice of taking off with flaps up or "no flaps," while other echelons felt that "half flaps" were mandatory. Hanle. supra, and critical view by Col John M. Verdi, comments on draft ms, 7Jan91 (Comment File, MCHC, Washington, D.C.).
98. Hanke and Schwarz intvws.

Combat in Vietnam

Primary sources for this section are the VMFA-531 Daily Summaries and Mission Debriefing messages located in the Command Chronology file at MCHC, augmented by interviews. Quotes are from the former two unless otherwise noted. Secondary sources include Jack Shulimson and Major Charles M. Johnson, USMC, *U.S. Marines in Vietnam: The Landing and The Buildup, 1965* (Washington: Hist&MusDiv, HQMC, 1978); for Marine Corps activities, Air War Study Group, Cornell University, *The Air War in Indochina* (Rev. Ed), Raphael Littauer and Norman Uphoff, eds.; and Stanley Kamow, *Vietnam: A History* (New York: Viking, 1983) for an overview.

99. CG 1st MAW msg to VMFA-531 (and others) Subj: VMFA-531 Deployment, 0432Z 12Apr65 (In ComdC files, MCHC, Washington, D.C.).
100. Shulimson and Johnson, p. 23.
101. LtGen Keith B. McCutcheon, "Marine Aviation in Vietnam, 1962-1970," *U.S. Naval Institute Proceedings*, May71, p. 126. "First to fight" remark by the then CinCPac J-3, BGen Homer G. Hutchinson, Jr. intvw with Col Quilter, 18Jan90. Fontana remark in ComdC files.
102. VMFA-531 Summary for Period 13-30 Apri11965 (in ComdC file).
103. IR Rep No.1 (12)/65/158 TW 12 IR #176/B12 dtd 17May65 is given as the source of this BDA in the Strike Results report.
104. BLT4 msg to VMFA-531 (and others), dtd 150110ZMay65 (in ComdC file).
105. "D" Co, 3d ReconBn ltr to CO VMFA-531, Subj: Air Support on 14May65, 19May65 (in ComdC file). Visits and messages like these were

great morale boosters for the Ghosts and other aviation Marines who rarely got to meet the people they supported.
106. BLT4 msg to CG 3d MarDiv, info VMFA-531, 180856ZMay65 (in ComdC file).
107. CG 3d MarDiv to VMFA-531 (and others), Subj: Air Support, 290620ZMay65 (in ComdC file).
108. Statement of LtCol N.G. Ewers, nd, attached to Strike Results msg for 27May65 (in ComdC file).

Cherry Point Again: Rebuilding and Training

Primary sources for this section were the Command Chronology file which began coverage on 1Dec66 and continues to the present. Other sources were the MCAS Cherry Point *The Windsock* base newspaper and Col Quilter's experiences as a pilot with VMFA-531 in 1966.

109. "531 Colors Return to Wing From Viet Nam," *The Windsock*, 23Jul65, p. 1.
110. HQMC, DC/S Air, Marine Corps Aviation Training and Readiness Manual, MCO P3800 series.

Rebirth and Renaissance at El Toro

Main references are the ComdC and the sources below. Col Quilter served as operations officer and pilot/aircrew training officer in the squadron in 1968-69.

111. John S. Attinelio, Weapons System Evaluation Group, Air-to-Air Encounters in Southeast Asia: Red Baron Reports (Vol. 1), WSEG Report #116, DTIC Report #125 (Alexandria, VA, Defense Technical Information Center, Oct67). Also NavAirSysCom, Report of Air-to-Air Missile System Capability, Review, Jul-Nov68: Ault Report (Washington D.C., 1969). In Naval Fighter Weapons School library, NAS Miramar, California.
112. MCO P3800 (T&R Manual) series for 1968 op cit. The F-4 syllabus was written by Capt John D. Cummings and Col Quilter who deliberately selected innocuous names such as "Basic Aircraft Maneuvering" and "Fighter Intercepts" for various ACM flights to get around any possible reluctance at reintroducing such flying on the part of senior officers. The terms were still in use in 1990.
113. Col John L. Thatcher, comments on draft ms, 14Jan91 (Comment File, MCHC).
114. Cubic Defense Systems, TACTS/ ACMI/MDS (San Diego, CA, 1988). ACMI (Air Combat Maneuvering Instrumentation) was the USAF term for TACTS.
115. See Robert L. Shaw, *Fighter Combat: Tactic and Maneuvering* (Wellingborough, GB: Patrick Stephens, 1986), pp. 346-383, for the evolution of visual identification.
116. Thatcher.

To the Mediterranean on the Forrestal

117. InVMFA-531ComdCfile.
118. LtCol David G. Vest intvw with Col Quilter, 3Mar70; Col David V. Denton intvw with Col Quilter ca. early 1990; and Col Randolph H. Brinkley intvw with Col Quilter, 13Jan88.

El Toro Home Interlude

119. LtCol David G. Vest intvw with Col Quilter, 3Mar70.
120. In VMFA-531 ComdC file.
121. Col Randolph H. Brinkley intvw with Col Quilter, 13Jan88.
122. Col John A. Gagen intvw with Col Quilter, 7Mar90.
123. 531 Gray Ghosts Squadron, *Ghost Lore*, 1994-5 vol., no.2, pp. 4-5.

The Indian Ocean on the Coral Sea

In addition to the Command Chronology , the framework for this section is drawn from Capt Paul B. Ryan, USN (Ret), *The Iranian Rescue Mission: Why It Failed* (Annapolis: Naval Institute Press, 1985), Col Gerald R. Pitzl, *A History of Marine Fighter Attack Squadron 323* (Washington: HQMC, Hist&MusDiv, 1987), and interviews with Col Gary R. Braun, Maj J. F. Flock, and Capt Eugene S. Holmberg.

124. *Ghost Lore.*
125. Col Gary R. Braun intvw with Col Quilter, 8Mar90.
126. Braun intvw.
127. Quoted in Capt Paul B. Ryan, USN (Ret), *The Iranian Rescue Mission: Why It Failed* (Annapolis: Naval Institute Press, 1985), p. 61.
128. *Ghost Lore*, supra.

El Toro Again: Enter the Hornets

129. CG 3d MAW msg to MAG-11, 292221ZNov82, Subj: End of an Era (in ComdC file).

130. CO VMFA-531ltr to CG 3d MAW, Subj: Bright Star 85 MAG-11(-) Rein After Action Report, 26Aug85 (in ComdC file).
131. Col Manfred A. Rietsch intvw with Col Quilter, 19Jan88.
132. Secretary of the Navy Letter of Commendation to VMFA-531 (Rein), nd., Rec'd 12May87 (in ComdC file).
133. Gunnery procedure from LtCol H.G. Hutchinson III intvw with Col Quilter, 1Apr90, and LtCol J.A. Gallinetti intvw with Col Quilter, 1Apr90. Statistics from MAG-11 draft msg to CG 3d MAW, nd, ca. 7Dec85 (in ComdC file).
134. CO VMFA-531ltr to CG 3d MAW, Subj: Green Flag 86-3 After Action Report, dtd 19Mar86 (in ComdC file).
135. LtCol J.L. Cieslak intvw with Col Quilter, 29Mar90. Quote is from CO VMFA-531 ltr to CG 3dMAW, Subj: Tyndall AFB FL Deployment After Action Report, 2Apr86 (in ComdC file).
136. Cieslak intvw. .

Back to WestPac

This section and the one following are based on the VMFA-531 ComdC files for Jan-Jun90 and Jan91-Mar92. (The ComdC for Jul90-Dec90 is missing.) Also helpful are issues of the *Flight Jacket* and LtCol Keith J. Stalder ltr to Capt John C. Chapin, 13Aug98.

137. ComSeventhFlt msg to VMFA-531, 21Mar90; VMFA-531 ComdC,1Jan-30Jun90, item 11.
138. CNO msg to CG FMFPac, 23Mar90, in Item 14 includes VMFA-531, citing "keen attention to detail, dedication, superb leadership. ..standard bearers of excellence."
139. Stalder ltr.
140. Ibid.
141. Ibid.
142. CG 3d MAW msg to VMFA-531, 24Apr91, citing "highest caliber professional performance . . . can-do attitude and exceptional operational readiness." (In VMFA-531 ComdC, 1Jan91-30Jun91, item 3.)
143. VMFA-531 ComdC, 1Jul-31Dec91, enc11, p. 4.
144. MAG-12 msg LtCol Keith J. Stalder, dtd 30Aug91, ComdC, supra, item 5.

The Final Chapter

145. MajGen Harold W. Blot, CG 3d MAW, msg to LtCol Keith J. Stalder, 5Dec91; VMFA-531 ComdC, item 7.
146. CMC msg to CG FMFPac, para 4B, 22Jan92.
147. Stalder ltr.
148. Ibid.
149. VMFA-531 ComdC, 1Jan -31Mar92 , sec. 2, p. 4.
150. Ibid., item 7.
151. *Flight Jacket*, 3Apr92, p. 16.

Appendix A

Marine Night Fighting - 1944

While on leave in 1944, Colonel Schwable took time to reflect on lessons learned in a long letter with copies to virtually everyone in the naval aviation community with an interest in the night fighting problem.* In it Schwable noted:

- The importance of GCI [ground controlled intercept] unit landing in the initial stages of an assault, such as done at Green Island, "breaking up the only two enemy attacks" on its first night of operation with two shoot downs.
- The improvement of the shipborne FDOs [Fighter Director Officers] once they had been made aware of the specific problems of night fighters; to wit, Lieutenant Reg Dupuy's controlling of the victories. Major Hicks in turn had been educated in ships' problems with tight spaces, although the question of [the defensive] effectiveness [of] AA [antiaircraft] versus night fighters remained open.
- A recommendation for a dedicated "fighter direction ship."
- The value of experience on all levels—pilots, aircrew, and GCI—to make night fighting effective, February [1944] being a dramatic example. Conversely, an inexperienced GCI controller could lose the whole tactical situation by "mike fright." One had actually placed the fighter ahead of the bogey by failing to pass all the "bogey dope" available.
- Problems of critical spares; parts backordered for three months had failed to arrive, and "only through [the] misfortune of one Navy PV squadron [has] this squadron been able to salvage sufficient spare parts to continue . . . operations."
- The ideal night fighter must be a twin engine . . . two seater, high performance air-plane . . . "Strangely enough, there has been a greater loss of contacts due to the PV's inability to slow down, to climb, or to turn sharply, than from a lack of speed."
- The advantage of a turret in spotting the bogey and engaging more than one enemy at a time.
- Piecemeal deployment to combat; only eight months after initial departure was the "complete, though untrained unit . . . of 19 pilots, 21 ground officers and 352 men" reunited in the Pacific.
- Vacillating policies on AA versus night fighters when in pursuit of a "hard contact"; more specifically, the unit's experienced "night fighter pilots [could] judge more accurately than ground personnel which type of opposition is most effective."
- The vulnerability of the PV if "caught out in" daylight compared to the F4U-2, "one of [its] few advantages."
- A series of pithy "Hints to Pilots" which included pressing one's face against a spotless windscreen for better visual tracking; "relaxing" while flying on instruments to avoid fatigue; keeping general track of one's whereabouts during chases; careful visual stalking of the bogey with RO reading off ranges, and not "los[ing] him under the PV's big nose" to a "100 percent no deflection shot" at the fuselage, then at the engine if necessary; pressing the gun firing button—"not some other button"—of well-bore sighted guns "in close [to] shoot him down and get the hell out of the way" to avoid being struck by debris; and if the pilot cannot get a shot at maneuvering bogey, then "waste no time in telling your turret gunner to let loose with everything he has."

In the forwarding endorsement the Com-mander, Air Force, Pacific Fleet recognized an urgent need for at least two types of night fighters: "(a) One suitable for carrier based operations" and "(b) Another desired for shore based operations"—thus articulating a debate which would continue for 20 years or more.

*CO VMF(N)-531 ltr to CMC, Subj: Rpt of VMF(N)-531 Operations in the South Pacific, 25Nov43-25Feb44, dtd 25Feb44 (in War Diary).

Appendix B

Marine Close Air Support - 1965

The ground-based forward air controller (FAC)—usually an aviator or, later, a Naval Flight Officer as well—consulted with his ground commander and requested air support through a Direct Air Support Center (DASC). The DASC was usually co-located with the Fire Support Coordination Center (FSCC) for ease in integrating other supporting arms. These requests were monitored by higher commands, such as battalion, regiment, or division, using silence as consent. This eliminated passing requests up and down the chain of command. A more time-consuming system was used if the request came from the 2d Air Division.*

The DASC then relayed the request to the Tactical Air Direction Center (TADC) which scrambled the flight via hotline. The lead RIO answered the telephone, verified a scramble, and then copied the TACAN coordinates of the target or marshal point, plus the frequency and call sign of the FAC. Meanwhile, the others raced (or rapidly waddled)—as fast as their 50 pounds of harness, "G"-suit, and survival gear permitted—to their aircraft, yelling: "Scramble!" The line crew fired up the jet air starter unit as the aircrews buckled into their Phantoms, which had been preflighted and run up earlier. Using abbreviated scramble procedures, a section could be armed and airborne within 10 minutes if two air starters were available, or about 15 minutes if there was only one.

Once airborne, the flight checked in with the TADC, the DASC, and the FAC, the latter two often using the same radio frequency. It was clear at this point that small ground targets were almost impossible to pick up from a fast moving jet. Thus, most close air support (CAS) in the Republic of Vietnam was controlled from Cessna O-1E spotter planes, or UH-1E Huey helicopters, which used white phosphorous ("Willie Pete") 2.75 inch rockets to mark the target. Ground FACs could and did control as well, often lobbing out smoke grenades to mark positions. Because Marine jets unaccountably were only equipped with ultra high frequency radio, and not with very high frequency which the ground forces used, the FAC had to have both. He briefed the CAS planes on target location, elevation, direction of run and pull-off, plus location of friendlies. If the CAS were really close—down to within 50-60 feet of friendly positions—the FAC would withhold "clearance hot" until he was sure the attacking plane was aligned on target.

Now it was up to the Ghost crew. In fair weather, an 8,000-foot roll-in altitude was used to achieve a 30 degree dive. The RIO called out speeds, altitudes, and dive angles, as the pilot struggled with his tracking run to bring his pipper onto the target just in time for "Standby . . . Mark!" Release came at 3,000 feet, followed by a four "G" pull-out. With lower ceilings or in poor visibility, the F-4B was flown in a 2-4 "G" turn—often in afterburner to sustain energy—while the pilot fought to keep the target in sight and bring his Phantom into the proper attack "slot or "groove." Sometimes he lost it in a cloud or mist, and had to go on instruments briefly until breaking out again, a nerve-wracking business in the mountains or at night. Sweat soaked each crewman's fire-retardant cotton flight suit throughout and literally poured off them in high "G" maneuvers.

But nothing would push aircrews harder to take more chances than the knowledge that fellow Marines on the ground were in trouble and needed their help.

*The coordination of air support between USAF, Army and ARVN units was difficult at best, and was complicated by language and doctrinal problems. Close air support *per se* was not practiced by the USAF at this time, and it preferred to use pre-planned strikes with 20 or more hours lead time.

Appendix C

Commanding Officers

LtCol Frank H. Schwable . . . . . 16 Nov 1942 - 31 Mar 1943
Maj John D. Harshberger . . . . . .1 Apr 1943 - 31 May 1943
Col Frank H. Schwable . . . . . .1 Jun 1943 - 17 Feb 1944
LtCol John D. Harshberger . . . . . .18 Feb 1944 - 6 May 1944
Capt James H. Wehmer . . . . . .7 May 1944 - 31 Aug 1944
Capt Ralph J. Garza . . . . . .1 Sep 1944 - 3 Sep 1944

SQUADRON DISBANDED 3 SEP 1944; REFORMED 13 OCT 1944

LtCol Radford C. West . . . . . .13 Oct 1944 - 10 Nov 1944
Maj Edward V. Mendenhall, Jr. . . . . .11 Nov 1944 - 16 Nov 1944
Capt Robert R. Finch . . . . . .17 Nov 1944 - 15 Mar 1945
Maj Alfred N. Gordon . . . . . .16 Mar 1945 - 9 Apr 1945
Maj Robert P. Keller . . . . . .10 Apr 1945 - 10 Jun 1945
Capt James H. Wehmer . . . . . .11 Jun 1945 - 21 Oct 1945
LtCol Alfred N. Gordon . . . . . 22 Oct 1945 - 27 Dec 1945
Maj Harold G. Schlendering . . . . . .28 Dec 1945 - 6 Jun 1946
Maj Joseph H. Reinburg. . . . . 7 Jun 1946 - 16 Jul 1946
Maj Ernest R. Hemingway . . . . . .17 Jul 1946 - 31 Jul 1946
Maj Joseph H. Reinburg . . . . . .1 Aug 1946 - 31 May 1947
LtCol Peter D. Lambrecht . . . . . .1 Jun 1947 - 31 Jul 1947
LtCol Andrew G. Smith, Jr. . . . . .1 Aug 1947 - 14 Jul 1948
LtCol Nathan T. Post, Jr. . . . . .15 Jul 1948 - 12 Jun 1949
LtCol Joseph W. Kean, Jr. . . . . .13 Jun 1949 - 15 Jun 1950
LtCol John R. Spooner . . . . . .16 Jun 1950 - 23 Jul 1951
Maj Fred J. Gilhuly . . . . . .24 Jul 1951 - 28 Jul 1951
LtCol Boyd C. McElhany, Jr. . . . . .29 Jul 1951 - 6 Jan 1952
LtCol Gelon H. Doswell . . . . . .7 Jan 1952 - 11 Feb 1952
Maj Lowell D. Grow . . . . . .12 Feb 1952 - 14 Jun 1953
Maj Arthur R. Boag . . . . . .15 Jun 1953 - 30 Jul 1953
LtCol Ernest R. Hemingway . . . . . .31 Jul 953 - 14 Jun 1954
LtCol Roscoe C. Cline, Jr. . . . . .15 Jun 1954 - 31 Aug 1954
LtCol Alexander M. Hearn . . . . . .1 Sep 1954 - 10 Nov 1955
LtCol Walter W. Turner . . . . . .11 Nov 1955 - 31 Jul 1956
LtCol Donald S. Bush . . . . . .1 Aug 1956 - 31 Jul 1957
Maj Earl W. Johnson . . . . . .1 Aug 1957 - 19 Aug 1957
LtCol Gordon E. Gray . . . . . .20 Aug 1957 - 31 Jul 1958
LtCol Henry W. Hise . . . . . .1 Aug 1958 - 29 Jun 1960
Maj Emmons S. Maloney (temporary) . . . . . .30 Jun 960 - 5 Jul 1960
LtCol George J. Collins . . . . . .6 Jul 1960 - 2 May 1961
LtCol John N. Swartley . . . . . .3 May 1961 - 1 Jul 1961
LtCol George J. Collins . . . . . .2 Jul 1961 - 4 Jul 1962
LtCol Robert F. Foxworth . . . . . .5Jul 1962 - 1 Jul 1963

LtCol William C. McGraw, Jr. . . . . 2 Jul 1963 - 1 Jul 1965
LtCol Robert L. Wildey . . . . . 2 Jul 1965 - 4 May 1966
Maj Frank D. Topley . . . . . 5 May 1966 - 15 Dec 1966
Maj Roy A. Seaver . . . . . 16 Dec 1966 - 14 Jul 1967
LtCol William K. Parcell . . . . . 15 Jul 1967 - 31 Mar 1968
Maj Karl A. Zimmerman . . . . . 1 Apr 1968 - 25 Jul 1968
LtCol Richard Perez . . . . . 26 Jul 1968 - 24 Jul 1969
LtCol John L. Thatcher . . . . . 25 Jul 1969 - 23 Feb 1971
LtCol Robert N. Hutchinson . . . . . 24 Feb 1971 - 12 Oct 1971
LtCol John T. Zych, Jr. . . . . 13 Oct 1971 - 25 Jul 1973
LtCol Michael P. Cady . . . . . 26 Jul 1973 - 26 Aug 1974

SQUADRON DEACTIVATED 10 JUN 1975; REACTIVATED 29 AUG 1975

LtCol John A. Gagen . . . . . 27 Aug 1974 - 24 Jun 1976
LtCol David G. Vest . . . . . 25 Jun 1976 - 8 Jun 1978
LtCol John A. Williams . . . . . 9 Jun 1978 - 30 May 1979
LtCol Gary R. Braun . . . . . 31 May 1979 - 10 Dec 1980
LtCol John L. Vogt . . . . . 11 Dec 1980 - 17 Dec 1981
LtCol Robert R. Renier . . . . . 18 Dec 1981 - 9 Jul 1982
LtCol James L. Lucas . . . . . 10 Jul 1982 - 15 Jun 1984
LtCol Manfred A. Rietsch . . . . . 16 Jun 1984 - 25 Jun 1986
LtCol James L. Cieslak . . . . . 26 Jun 1986 - 27 Oct 1988
LtCol John F. Goodman . . . . . 28 Oct 1988 - 28 Jun 1990
LtCol Keith J. Stalder . . . . . 29 Jun 1990 - 31 Mar 1992

SQUADRON DEACTIVATED 31 MAR 1992

Appendix D

Chronology

16 Nov 1942	Activated at Cherry Point, North Carolina, as Marine Night Fighter Squadron 531
Apr 1943	Assigned to MAG-53, 3d Marine Aircraft Wing
Jul 1943	El Centro, California
Aug 1944	Territory of Hawaii
Sep 1943	Reassigned to MAG-21, 1st Marine Aircraft Wing
1944	Espiritu Santo, New Hebrides Islands
1944	Russell Islands, Solomon Islands
1944	Vella Lavella, Solomon Islands
1944	Bougainville, Solomon Islands
Aug 1944	Relocated to Cherry Point, North Carolina
3 Sep 1944	Deactivated
13 Oct 1944	Reactivated at Kinston, NC, and assigned to MAG-53, 9th Marine Aircraft Wing
29 Nov 1944	Relocated to Eagle Mountain Lake, Texas
Feb 1946	Relocated to Cherry Point, North Carolina
Mar 1946	Reassigned to the 2d Marine Aircraft Wing
Dec 1946	Detached from the 2d Marine Aircraft Wing
Jun 1947	Detached from MAG-53
Oct 1947	Assigned to the 2d Marine Aircraft Wing
Jun 1948	Assigned to MAG-14
14 Oct 1948	Redesignated as Marine All Weather Fighter Squadron 531
Sep 1949	Reassigned to MAG-24
Apr 1959	Deployed to Atsugi, Japan, and assigned to MAG-11, 1st Marine Aircraft Wing
Jan 1960	Redeployed to Cubi Point, Philippines
1960	Pingtung, Taiwan
1960	Atsugi, Japan
Jun 1960	Relocated to Cherry Point, North Carolina, and assigned to MAG-24, 2d Marine Aircraft Wing
Jul 1961	Redeployed to Astugi, Japan, and reassigned to MAG-11, 1st Marine Aircraft Wing
Jul 1962	Relocated to Cherry Point, North Carolina, and reassigned to MAG-24, 2d Marine Aircraft Wing
Feb 1963	Relocated to Key West, Florida, for Cuban Missile Crisis
Jun 1963	Returned to Cherry Point, North Carolina
1 Aug 1963	Redesignated as Marine Fighter Attack Fighter Squadron 531
Jun 1964	Deployed to Atsugi, Japan, and reassigned to MAG-11, 1st Marine Aircraft Wing
Apr 1965	Redeployed to Da Nang, Republic of Vietnam
Jul 1965	Relocated to Cherry Point, North Carolina, and reassigned to MAG-24, 2d Marine Aircraft Wing
Apr 1968	Relocated to El Toro, California, and reassigned to MAG-33, 3d Marine Aircraft Wing
Dec 1970	Reassigned to MAG-13
Sep 1971	Reassigned to MAG-11
May 1972	Deployed to the Mediterranean with the Sixth Fleet on board the *Forrestal* (CVA 59), and reassigned to Commander, Attack Carrier Wing 14

Jul 1973	Relocated to El Toro, California, and reassigned to MAG-11, 3d Marine Aircraft Wing
1 Jul 1975	Cadre status; administratively attached to MAG-32 at MCAS Beaufort, South Carolina
9 Aug 1975	Reactivated at MCAS El Toro, California, and reassigned to MAG-11
Nov 1979	Deployed to the Western Pacific/Indian Ocean with the Seventh Fleet on board the *Coral Sea* (CV 43), and reassigned to Commander, Carrier Wing 14
Apr 1980	Participation in Combat Air Patrol contingencies in the Arabian Sea during the Iranian hostage rescue mission
Jun 1980	Returned to El Toro, California, and reassigned to MAG-11
Dec 1981	Operations on board *Ranger* (CV 61)
24 Nov 1982	Transferred last F-4N
29 May 1983	First F/A-18 Hornet delivered to Ghost Town
28 Aug 1983	F/A-18 transition complete.
Sep 1983	First fleet F/A-18 pilots attend Top Gun, both are Grey Ghosts
22 Mar 1984	First F/A-18 TransPac and missile "shoot on arrival" at Kaneohe Bay, Hawaii
16 Jul 1985	Deployment to Inshas Air Base, Egypt, in support of Operation Bright Star
26 Jun 1986	Deployment to NAS Adak, Alaska, in support of Exercise Sand Dollar
12 May 1987	Squadron received a Letter of Commendation from the Secretary of the Navy for its participation in Bright Star
Jul 1987	Former Grey Ghost Captain Andrew M. Allen (1983-1986) became the 14th Marine to be selected by NASA as an astronaut
17 Aug 1987	VMFA-531 becomes the first fleet F/A18 squadron to drop MK-20 Rockeye
25 Apr 1988	12 F/A-18s arrive at "The Chon," Yechon Air Base, Republic of Korea, as part of the UDP
Jul 1988	Deployment to U-Tapao, Kingdom of Thailand, as part of the Air Combat Element of Cobra Gold-88
8 Oct 1988	Grey Ghosts return to El Toro
3 Oct 1989	12 F/A-18s deploy to Iwakuni, Japan, as part of the UDP
Oct 1989	Conducted real world intercept and escort of Soviet aircraft during Valiant Blitz-90
16 Feb 1990	VMFA-531 becomes the first Marine F/A18 squadron to deploy MK-52 sea mines in a tactical environment
Mar 1990	Conducted real world intercept and escort of Soviet aircraft during Team Spirit-90
Apr 1990	12 F/A-18s redeploy to El Toro, California
Feb 1991	VMFA-531 deployed to Iwakuni, Japan, as part of the UDP and in support of Operations Desert Shield and Desert Storm
Jun 1991	Two Grey Ghost aircraft trapped at NAS Cubi Point, Republic of the Philippines after Mt. Pinatubo erupts
Aug 1991	16 F/A-18s return to E; Toro, California
31 Mar 1992	VMFA-531 is deactivated by order of the Commandant of the Marine Corps

Note: While the active-duty Grey Ghost squadron is no more, in 1979 the "531 Gray (sic) Ghost Squadron" was born as a chartered squadron of the Marine Corps Aviation Association. (The active duty squadron spells Grey Ghosts as opposed to Gray Ghost for the MCAA chartered squadron.) Worldwide in scope, the squadron is an independent entity adhering to the concepts and principles of the MCAA. Membership is open to all personnel who at one time or another were attached to -531 and are interested in carrying on the spirit of comradeship traditional among those who have served in Marine Aviation, and especially the Grey Ghosts of -531. A newsletter, the *Ghost Lore,* is published periodically. In addition, the Composite Crew of the Year Award was inaugurated in 1980 for active duty Ghosts in -531. There is also a Marine Night Fighter Association which has alumni of -531 as members.

Appendix E

Honors

PRESIDENTIAL UNIT CITATION STREAMER
(Vietnam, 11 May - 15 Jun 1965)

NAVY UNIT COMMENDATION STREAMER
(Vietnam, 10 Apr - 15 Jun 1965)

MERITORIOUS UNIT COMMENDATION STREAMER WITH ONE BRONZE STAR
(12 Apr 1979 - 1 May 1980)

ASIATIC-PACIFIC CAMPAIGN STREAMER WITH FOUR BRONZE STARS
(New Georgia Operation, 11Sep - 16 Oct 1943)
(Treasury-Bougainville Operation, 27 Oct - 15 Dec 1943)
(Bismarck Archipelago Operation, 16 Dec - 1 May 1944)
(Solomon Islands, 13 May - 9 Aug 1944)

AMERICAN CAMPAIGN STREAMER
(North Carolina & Texas, 13 Oct 1944 - 2 Mar 1946)

WORLD WAR II VICTORY STREAMER
(16 Nov 1942 - 3 Sep 1944, 13 Oct 1944 - 31 Dec 1946)

NATIONAL DEFENSE SERVICE STREAMER WITH TWO BRONZE STARS
(27 JAN 1950 - 27 JUL 1954)
(1 Jan 1961 - 15 Aug 1974)
(2 Aug 1990 - 31 Mar 1992)

MARINE CORPS EXPEDITIONARY STREAMER
(Indian Ocean, Nov 1979 - Jun 1980)

VIETNAM SERVICE STREAMER WITH ONE BRONZE STAR
(Vientam Defense Campaign, 10 Apr - 11 Jun 1965)

VIETNAM CROSS OF GALLANTRY WITH PALM STREAMER
(10 Apr - 11 Jun 1965)

Appendix F

Citations

The President of the United States takes pleasure in presenting the PRESIDENTIAL UNIT CITATION to the

FIRST MARINE AIRCRAFT WING

for service as set forth in the following

CITATION:

For extraordinary heroism and outstanding performance of duty in action against the North Vietnamese Army and Viet Cong forces in the Republic of Vietnam from 11 May 1965 to 15 September 1967. Throughout this period, the First Marine Aircraft Wing, operating in I and II Corps tactical zones of the Republic of Vietnam, North Vietnam, and adjacent waters, sought out and destroyed determined enemy forces and provided combat air support to ground forces of the Free World and the Republic of Vietnam. Participating in 195 major operations, and thousands of other attacks, the Wing continuously and aggressively carried the battle to the elusive enemy in bitterly contested actions. Operations such as DOUBLE EAGLE, HARVEST MOON, STARLITE, HASTINGS, PRAIRIE, UNION, HICKORY, COCHISE, and SWIFT reflect the high degree of superior airmanship, valor, devotion to duty, and professionalism exhibited by personnel of the Wing.

Although heavily committed to increased combat operations, the Wing developed and successfully employed new weapons, tactics, and procedures against the hard-core communist forces with gratifying results. Through the aggressive actions of the Wing, military and political victories were denied the insurgent Communist forces, thereby providing a more stable atmosphere for the legally constituted Government of the Republic of Vietnam.

The establishment and logistical support of many separate airfields throughout the I Corps tactical zone and the vital air supply support provided the III Marine Amphibious Force and its allied ground forces, was a tribute to the resourcefulness and determination of the Wing. This dependable support was provided under the most trying and difficult combat conditions. Flying in fair weather and foul, against a fanatical, well-armed enemy, the uncommon courage and intrepidity of the Marine pilots and supporting Wing personnel, acting in a concerted team effort, contributed to another glorious chapter in an already illustrious history. The valor, devotion to duty, aggressive spirit, professionalism, and ingenuity of the entire First Marine Aircraft Wing in battle against a well trained, dangerous, and determined enemy reflected the highest degree of heroism and exemplary performance, and were in keeping with the highest traditions of the Marine Corps and the United States Naval Service.

LYNDON B. JOHNSON

The Secretary of the Navy takes pleasure in presenting the NAVY UNIT COMMENDATION to

MARINE FIGHTER/ATTACK SQUADRON
FIVE HUNDRED THIRTY-ONE

for service as set forth in the following

CITATION:

For exceptionally meritorious service from 10 April to 15 June 1965, while participating in combat operations in the Republic of Vietnam. Arriving at Da Nang Air Base, Republic of Vietnam on 10 April 1965, Marine Fighter/Attack Squadron FIVE HUNDRED THIRTY-ONE was the first Marine fixed-wing squadron to conduct combat air operations in support of Marine units and Republic of Vietnam (RVN) forces against Communist insurgents in Vietnam. The squadron became the first fixed-wing unit in aviation history to provide fully integrated en route escort and landing zone support for rotary-wing aircraft in tactical combat operations. The squadron performed outstandingly in these missions, in its maintenance efforts, and in its ability to provide air-to-ground support for a broad spectrum of missions.

A remarkable record of aircraft availability and reliability was achieved despite diversion of a large amount of manpower to construct a tent camp, maintain a ground defense force, and prepare earthworks and fighting positions for its defense force and tent camp. While its aircrews were trained primarily for air-to-air missions, the squadron's superb overall readiness and aggressiveness compensated for a lack of training for certain tasks. The performance of Marine Fighter/Attack Squadron FIVE HUNDRED THIRTY-ONE in support of TU LUC-150, a major RVN-Viet Cong battle waged from 31 May to 4 June 1965, was instrumental in stopping a major Viet Cong offensive in Quang Ngai Province. The courage, professional competence and devotion to duty displayed by the officers and men of Marine Fighter/Attack Squadron FIVE HUNDRED THIRTY-ONE were in keeping with the highest traditions of the Marine Corps and the United States Naval Service.

All personnel attached to and serving with Marine Fighter/Attack Squadron FIVE HUNDRED THIRTY-ONE during the above period, or any part thereof, are hereby authorized to wear the NAVY UNIT COMMENDATION Ribbon.

PAUL R. IGNATIUS
Secretary of the Navy

The Secretary of the Navy takes pleasure in commending

MARINE FIGHTER ATTACK SQUADRON 531 (REINFORCED)

for service as set forth in the following

CITATION:

For meritorious service in connection with Exercise BRIGHT STAR 85 from 1 August 1985 to 16 August 1985. During this period, Marine Fighter Attack Squadron 531 (Reinforced) and its supporting units meticulously prepared for and flawlessly executed the first long range, land based F/A-18 squadron deployment in conjunction with a multinational, multi-service strategic reinforcement exercise sponsored by the United States Command in the Middle East. Working in a harsh, bare base desert environment, the Squadron operated its ten aircraft, flying demanding and complex air-to-air and ground attack missions in support of I Marine Amphibious Force Marines and USS NIMITZ (CVN 68) strike forces.

During the eleven-day operation in the Egyptian desert, the Squadron maintained a 96 percent full mission capable aircraft rate and operationally flew every aircraft every day. The Squadron displayed to all commands involved in the exercise, the reliability, force projection, and sparse logistic requirements that a Marine F/A-18 aviation unit can provide to any potential battlefield throughout the world. By their continuous display of professionalism, determination, and loyal devotion to duty, the officers and enlisted personnel of Marine Fighter Attack Squadron 531 (Reinforced) reflected credit upon themselves and upheld the highest traditions of the Marine Corps and the United States Naval Service.

JOHN LEHMAN
Secretary of the Navy

The Secretary of the Navy takes pleasure in presenting the MERITORIOUS UNIT COMMENDATION to

USS *CORAL SEA* (CV 43)
AND
EMBARKED CARRIER AIR WING FOURTEEN

for service as set forth in the following

CITATION:

For meritorious service during an extensive, eleven-month overhaul, an intensive pre-deployment workup, and an extended deployment to the Western Pacific and Indian Ocean from 7 March 1978 to 1 May 1980, and from 12 April 1979 to 1 May 1980 for participating embarked units. USS *Coral Sea*'s overhaul was characterized by superb planning and involvement by ships personnel. All work packages were completed on time, new standards of excellence in workmanship and quality control were established, culminating in a most successful sea trial. During a compressed workup cycle made difficult by numerous schedule perturbations, the ship and crew responded with exemplary spirit and sense of purpose resulting in *Coral Sea* and embarked Carrier Air Wing FOURTEEN being superbly conditioned and ready in every aspect for deployment to the Western Pacific.

Throughout deployment, *Coral Sea* demonstrated the capability to maintain an effective military presence in an area of vital importance to the nation's security. Further, during deployment to the Indian Ocean from 31 January to 1 May 1980, *Coral Sea* responded to the challenge of supporting contingency plans to rescue the American Hostages in Iran by resourceful development and flawless execution of tactics which ensured the successful initiation of this mission. By their continuous display of professionalism, determination, bold courage, and total devotion to duty, the officers, enlisted personnel, and civilian employees of USS *Coral Sea* (CV 43) reflected credit upon themselves and upheld the highest traditions of the United States Naval Service.

EDWARD HIDALGO
Secretary of the Navy

The Secretary of the Navy takes pleasure in presenting the MERITORIOUS UNIT COMMENDATION to

MARINE AIR-GROUND TASK FORCE (MAGTF) 4-90
UNITED STATES MARINE CORPS

for services as set forth in the following

CITATION:

For meritorious service from 1 April 1990 to 31 July 1991. Marine Air-Ground Task Force (MAGTF) 4-90 distinguished itself by maintaining a demanding training program while simultaneously responding to crisis missions in support of Commander, United States Naval Forces, Philippines (COMUSNAVPHIL); Joint Task Force, Philippines; and U.S. Embassy. In July 1990, MAGTF provided critical humanitarian aid to earthquake victims, and in September furnished relief assistance in the wake of numerous destructive typhoons, and in June 1991, performed daring rescue efforts following the catastrophic eruption of MOUNT PINATUBO.

Thousands of tons of supplies were moved and hundreds of stricken Philippine Nationals were evacuated to safety. The MAGTF rapidly and effectively responded to Navy, Marine, and Air Force aircraft incidents by providing MAGTF tactical recovery of aircraft and personnel packages, salvaging essential equipment, and providing security for aircraft and aircrew. The MAGTF excelled in Exercises ELIGIBLE RECEIVER, BEARING GUARD, and BALIKATAN, as well as numerous no-notice drills and field evolutions associated with threats to the security of United States facilities and installations. By their superior accomplishments, "can do" spirit, and untiring devotion to duty, the officers and enlisted personnel of Marine Air-Ground Task Force (MAGTF) 4-90 reflected credit upon themselves and upheld the highest traditions of the Marine Corps and the United States Naval Service.

JOHN H. DALTON
Secretary of the Navy

The Commandant of the Marine Corps takes pleasure inpresentirig the ROBERT M. HANSON AWARD to

MARINE FIGHTER ATTACK SQUADRON FIVE THREE ONE

for outstanding performance as a Fighter squadron for the period 1 July 1977 through 30 June 1978 as set forth in the following

CITATION:

In quest of the elusive title of "Best Marine Fighter Squadron" Marine Fighter Attack Squadron Five Three One (VMF A-531) began this period by establishing high goals for material readiness, aircrew training, efficiency, mobility and esprit de corps. Through readiness exercises, missile shoots, and operations such as Red Flag, the "Grey Ghosts" of VMFA-531 maintained one of the highest F-4 Operationally Ready/Full Systems Capable rates in Naval Aviation including 100% on 1 June 1978 when 51 sorties were launched utilizing all 11 aircraft.

Developing tactics, flying low-level radar navigation routes and participating in weapons systems evaluations all contributed to an active and productive aircrew training environment that produced some of the Marine Corps' finest fighter crews. A 99% successfully released drop rate for more than 5,000 pieces of air to ground ordnance typifies the efficiency with which this squadron operated. To test the squadron's mobility, VMFA-531 conducted each deployment as a tactical maneuver which provided an effective inspection criterion by which the squadron could painlessly assess their own capability in this area. The result is a well-trained, well-equipped, and well-organized fighter squadron that can be justifiably proud of bearing the title "Marine Fighter Squadron of the Year."

LOUIS H. WILSON
GENERAL, USMC
Commandant of the Marine Corps

Appendix G

Squadron Aircraft

DESIGNATION	MANUFACTURER	IN SQUADRON
SNJ-4 Texan	North American	16 Nov 42
SB2A-4 Buccaneer	Brewster	21 Dec 42
SNC-1 Falcon	Curtiss	Jan 43
PV-1 Ventura	Lockheed	15 Feb 43
SBD-5/6 Dauntless	Douglas	13 Jan 45
SB2C-4E Helldiver	Curtiss	Jan 45
F7F-1N/2N/3N Tigercat	Grumman	17 Jan 45
F6F-5N Hellcat	Grumman	May 47
F3D Skyknight	Douglas	Feb 52
F4D Skyray	Douglas	Feb 58
F-4B/N Phantom II	McDonnell Douglas	16 Nov 62-24 Nov 82
F/A-18A Hornet	McDonnell Douglas	29 May 83-31 Mar 92

Appendix H

Squadron Insignia

The insignia of the Grey Ghosts was designed in January 1944 by Captain B. Colby, USMCR, one of the original members of VMF(N)-531. It depicts flashing rays from the eye hollows of a skull, symbolizing a secret locating device (Radar) used by the first Marine night fighters.

In its earlier years, the squadron carried an "LT" marking on its tail. Then came "EC" Echo Charlie, sometimes in combination with the skull and rays, which continued to the end of the squadron's life. The members of -531 were proud to be referred to as "Ghosts" and called their long-time base at El Toro "Ghost Town."

Earlier version for VMF(AW)-531

Final version for VMFA-531

Unofficial insignia used after acquiring the F/A-18 Hornet

The "alumni" in the Marine Corps Aviation Association

The squadron insignia of VMFA-531 is shown on the back cover. For a detailed history of the insignia and other illustrations see Appendix H.


VMFA-531