

P. Eells made history of sorts when he successfully landed his F9F-2 on USS *Franklin D. Roosevelt* with only the nose wheel and right main landing gear. When the port main gear failed to extend, Eells burned off his *Panther's* excess fuel, made the approach and got his cut. The *Panther* caught a wire and rolled forward on the nose and right main gear until forward motion was lost. The aircraft then settled onto its left wing tip tank, causing only minor damage.

In April 1952, following tests of the British-developed steam catapult conducted during the first three months of the year at Philadelphia, Norfolk, and at sea, the Navy announced that the catapult would be adopted for use on American carriers. First installation was slated for USS *Hancock*.

In late May 1952, the feasibility of the angled-deck concept was demonstrated in tests conducted on a simulated angled deck, aboard USS *Midway*, by test pilots flying both jet and prop aircraft.

In June, combined elements of the Air Force, Navy and Marine Corps virtually destroyed the electric power potential of North Korea with attacks on prime military targets which had been bypassed for nearly two years of the war. The two-day attack, which involved more than 1,200 sorties, was the largest single air effort since the close of WW II. It was also the first to employ planes from all of the U.S. services fighting in Korea.

Then, on July 11 and 12, in one of the major coordinated air efforts of the war, Navy, Marine, Air Force, Australian and British air elements launched a round-the-clock attack on the railroad yards and industrial facilities at Pyongyang.

Two days later, on the other side of the globe in Newport News, Va., the keel of the 59,000-ton supercarrier, USS *Forrestal*, was laid. It was the first of its class.

Struck by canopy fragments when his *Panther* took a hit near Wonsan, Ensign Floryan Soberski demonstrated a blind carrier landing with the help of his wingman, Lieutenant Francis J. Murphy, and a pair of LSOs, Lieutenant Lawrence A. Dewing and Lieutenant Junior Grade

George A. Parker. Soberski could see slightly from his right eye but needed the radio guidance of Murphy and the LSOs to trap aboard the carrier, USS *Princeton*.

In February 1952, CNO approved a modification of the Project 27A carrier conversion program which provided an increase in the capacity of deck operating equipment. Changes included use of more powerful arresting gear, higher performance catapults and a replacement of the number three centerline elevator with a deck-edge type of greater capacity. Conversion of three *Essex*-class carriers incorporating these changes was completed in 1954 under Project 27C.

On August 29, the new UN philosophy of mass air attack was demonstrated once more by a record-breaking, around-the-clock raid on Pyongyang. The entire carrier air force of Task Force 77 teamed with the Fifth Air Force and the British to spread destruction on supply concentrations in and around the city.

In January of the new year, during tests aboard USS *Antietam*, the Navy's first angled-deck carrier, Captain S. G. Mitchell, the ship's C.O., landed in an SNJ. During the next four days, six aircraft models made landings, touch and goes, night landings and takeoffs in winds of varying force and direction.

Major John F. Bolt, USMC, downed his fifth and sixth MiGs while operating with the Fifth Air Force in Korea on July 11. He became the first Naval Aviator to attain five victories in jet aerial combat. The war was to end two days later.

On that final day, Task Force 77 went after transportation facilities with airfields as a secondary target. The attacks destroyed or damaged 23 railroad cars, 11 railroad bridges, one railroad tunnel, nine highway bridges and numerous buildings.

United Nations and communist representatives signed an armistice at Panmunjom, bringing hostilities to a halt, on July 27, 1952.

Lt.Col. Marion Carl, USMC, piloted the *Skyrocket* experimental aircraft to 83,235 feet, a new altitude mark, on August 21, 1-952. On September 2, a conversion plan for *Midway-class* carriers, titled Project 11, was promulgated. Changes were similar to those for the angled-deck version of Project 27C but with the addition of a modified C-11 steam catapult in the angled-deck area.

Lieutenant Commander James F. Verdin set a world speed record of 752.943 mph over a three-kilometer course in an F4D *Skyray*. This was a first for a carrier aircraft in its normal combat configuration. On September 16, Douglas test pilot Bob Rahn broke the 100-kilometer closed-course record in the *Skyray* with a 728.114-mph mark. On December 3, the first successful test of super circulation (boundary layer control) on a high-speed airplane, an F9F-4 *Panther*, took place at Grumman's Bethpage, Long Island, facility. John Attinello, BuAer engineer, was credited with developing this practical application of a long-known aerodynamic principle.

II. Tactical Jet Missions

In spite of the Korean truce, peace in the world remained on unsteady footing in the last half of the 1950s. There were crises in the Far East, the Middle East, and a general deterioration in international relations. At the same time, a new importance was rendered to the traditional practice of deploying naval forces to trouble spots of the world.

There were also significant technological advances. In fact, Naval Aviation experienced changes that were as great as any in its history during this time. These improvements enhanced the speed, firepower, versatility and mobility of sea and air forces. Guided missiles began replacing guns, the capability to deliver nuclear weapons was increased, aircraft speeds jumped from sub to supersonic, the adaptation of nuclear power to aircraft was under investigation, and an increased knowledge of space gave evidence of its future effect on surface operations.

A new class of flattops was built and the carrier modernization program was completed. Carrier forces were thus strengthened and a new family of high-performance aircraft operated with them.

On April 1, 1954, the first transcontinental flights in less than four hours were made by three VF-21 pilots in F9F *Cougars*. They traveled 2,438 miles from San Diego to New York, refueling in flight over Hutchinson, Kans. This was but the first of a succession of record-breaking hops that reflected a giant step forward in increasing jet aircraft performance. Early in 1955, an FJ-3 *Fury* from VF-33 scored a record when Lieutenant Commander W. J. Menby flew it to 10,000 feet from a standing start in 73.2 seconds. Less than a month later, McDonnell test pilot C. V. Braun piloted an F3H-1N *Demon* to 10,000 feet in 71 seconds. On February 23, Douglas' Bob Rahn reached 10,000 feet in 56 seconds in an F4D *Skyray*.

The Mirror Landing System, destined to make carrier operations substantially

safer, was successfully tested aboard USS *Bennington* on August 22. *Bennington's* C.O., Commander R. G. Dose, made the first carrier mirror landing in an FJ-3. Two days later, Lieutenant Commander H. C. MacKnight made the first night landing with the mirror, in an F9F-8 *Cougar*.

In order to increase range and overall performance capabilities, the Navy announced, in September, that all fighters in production should be outfitted with in-flight refueling gear, thus standardizing an operational procedure.

On October 1, *Forrestal*, first of four flattops of the "supercarrier" class, was commissioned at Norfolk.

PH3 M. Rizza



The last three operational TF-9F Cougars prepare to make a final launch off USS John F. Kennedy (CVA-67) in February 1974.

In early 1956, the all-weather F3H-2N *Demon* fighter arrived at NAS Cecil Field-based VF-14. VA-83 headed for the Mediterranean aboard USS *Intrepid* with its *Sparrow* /-equipped F7U-3M *Cutlass* aircraft, signaling the first overseas deployment of a naval missile squadron. At the end of March, the initial five nuclear-capable A3D-1 *Skywarrior* heavy attack bombers were delivered to VAH-1 at Jacksonville, Fla.

In July, VA-46 and its F9F-8s departed for the Sixth Fleet aboard USS *Randolph*. This unit was the first to deploy overseas with the *Sidewinder* missile. Deployment of this new weapon was extended to the Western Pacific a month later when VF-211 and its FJs joined the Seventh Fleet aboard USS *Bon Homme Richard*.

On July 31, Lieutenant Commander P. Harwood A. Henson, with Lieutenant R. Miars, demonstrated the performance capabilities of the *Skywarrior* when they made a 3,200-mile, nonstop, nonrefueling flight from Honolulu to Albuquerque, N.M., in five hours, 40 minutes. The A-3 averaged 570 mph.

In August, an F8U-1 *Crusader* captured the Thompson Trophy with a record speed of 1,015.428 mph. The *Crusader* was the first operationally equipped jet plane in history to fly faster than 1,000 mph.

Speed records continued to fall with regularity but not all aeronautical events were success stories. An F11F-1 *Tiger*, flown by Grumman test pilot Tom Attridge, shot itself down while conducting test firings off eastern Long Island by running into 20mm projectiles that it had fired only seconds before.

A historic milestone was marked on October 16 when five students received Naval Observer Wings. They became the first graduates of the Navigator-Bombardier School at NAS Corpus Christi, Texas.

The Suez crisis erupted into open warfare on October 29, 1956, and all major fleet units were sent to sea under maximum readiness conditions. The Sixth Fleet was ordered to evacuate U.S. nationals from the area. Aircraft provided cover and heavy combatant ships stood by while ships and Air Force transport squadrons went into Alexandria, Egypt; Haifa and Tel Aviv, Israel; Amman, Jordan; and Damascus, Syria. They



The F-4B Phantom II first flew in 1958 and provided yeoman service in Vietnam as a strike-fighter.

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evacuated more than 2,000 persons by November 3. Operations by the Sixth Fleet, in the area for several weeks, included the logistic support of the first UN International Forces which arrived in the area in November.

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On February 1, 1957, Lieutenant Commander Frank H. Austin, Jr., completed test pilot training at NATC Patuxent River, and became the first Navy flight surgeon to qualify as a test pilot.

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USS *Antietam* reported for duty to Chief of Naval Air Training at Pensacola, providing the command its first angled-deck carrier for flight training. The first T2V-1 *Seastar* jet trainer arrived at NAS Corpus Christi on May 27, further upgrading the training command.

In the fleet, a pair of *Crusaders* and two *Skywarriors* flew nonstop from *Bon Homme Richard* off the California coast to *Saratoga* off the Florida coast, in another demonstration of the increasing performance capabilities of sea-based jet aircraft.

Major John H. Glenn, Jr., astronaut and later senator, made history on July 16, 1957, when he flew an F8U-1P *Crusader* from Los Alamitos, Calif., to Floyd Bennett Field, N.Y., in three hours and 22 minutes, averaging 7,232 mph along the way. This was the first upper atmosphere supersonic flight from the West Coast to the East Coast and broke the transcontinental speed record.

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In August, flying a F3D *Skynight*, Lieutenant Commander Don Walker landed aboard *Antietam* in the Gulf of Mexico using the new Automatic Carrier Landing System. This inaugurated a sequence of shipboard tests of the apparatus which were designed to bring planes aboard in all weather conditions without help from the pilot.

At Patuxent River, Lieutenant Sydney Hughes, RAF, ejected intentionally from an F9F-8T flying just above the ground at 120 mph using the Martin-Baker ejection seat, then under evaluation by Grumman Aircraft.

In February 1958, the keel of the world's first nuclear-powered aircraft carrier, USS *Enterprise*, was laid in Newport News, Va. A month later, CNO approved a reorganization of carrier aviation that would create uniform air groups, provide a more permanent group assignment to ships, and permit a reduction of assigned units and aircraft without reducing combat readiness. The new organization also provided for a permanent replacement air group to be established on each coast. These units were made responsible for the indoctrination of key maintenance personnel, the tactical training of aviators, and for conducting special programs required for introduction of new models of combat aircraft.

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Reflective of the growing dominance of jet aircraft, an all-jet program in basic flight training began in May when 14 students reported to ATU-206 at Forrest Sherman Field, Pensacola, Fla., to fly the T2V *Seastar*.

That same month, four *Demons* and four *Crusaders* completed nonstop transatlantic crossings in Operation *Pipeline*, demonstrating that carrier aircraft could be delivered from the East

Coast to the Sixth Fleet in the Mediterranean expeditiously.

On May 27, 1958, the McDonnell F-4H-1 *Phantom II* flew for the first time. Thus began the career of one of the finest air weapons in the Navy/Marine Corps inventory.

Facts about the *Phantom*:

— In 48 seconds, the *Phantom II* can climb four miles to intercept enemy aircraft.

— With the throttles two-blocked, the F-4 consumes enough fuel in 60 seconds to drive an average American car more than 3,000 miles, and it carries enough fuel to drive that car about 35,000 miles.

— More than 643,000 fasteners are used to hold the *Phantom* together.

— Flight time from St. Louis to Chicago is 12 minutes.

— Its generators can push enough power through its 14 miles of electrical wiring to supply a subdivision of 30-40 homes with enough power to operate lights, washing machines, TV's, toasters, can openers, vacuum cleaners, etc.

— And speaking of vacuum cleaners, its engines at full bore draw in enough air to collapse a typical six-room house in two seconds.

— Painting one F-4 takes two days, 36 people and 28 gallons of paint, enough to cover seven six-room houses.

— The catalyzed epoxy paint withstands temperatures up to 450 degrees and is resistant to engine and hydraulic oil.

— It can slow to a mere 125 knots or streak through the sky at more than 1,300 mph. For routine travel, it eases along at 570 mph for more than 1,500 miles without refueling.

— On takeoff it can hold an external load of more than eight tons.

— Unrefueled range from carriers or existing suitable friendly bases allows the *Phantom* to carry its payload of ground strike weapons over 92 percent of the earth's surface.

In July 1958, while aircraft from *Essex* and *Saratoga* flew cover from long range and Sixth fleet ships stood by, amphibious units landed 1,800 Marines on the beach near Beirut to support the Lebanese government and to protect American lives. In the days following, land, sea and air reinforcements were sent to the area and order was maintained without incident. Tensions rose elsewhere, though, after Chinese Communists shelled the Kinmen Islands in August, renewing indications of naval activity in the Taiwan Straits. Seventh Fleet ships moved to the area to support the Republic of China in a firm stand against aggression. Tensions remained high and warlike action continued. Reinforcements, including aircraft carriers, were sent to the area. By October, the threat lessened and the situation was somewhat stabilized.

Speed, altitude and distance records continued. On January 24, 1959, Major J. P. Flynn and Captain C. D. Warfield of the 2nd Marine Aircraft Wing, flew nonstop without refueling, from El Toro, Calif., to Cherry Point, N.C., in A4D *Skyhawks*, covering 2,082 miles in four hours, 25 minutes.

In March, Aviation Cadet E. R. Clark soloed in a TT-1 *Pinto*, the first student in Naval Aviation history to solo a jet without previous experience in propeller aircraft.

In April, the *Bullpup* missile was first deployed overseas when VA-212, with FJ-4B *Furies*, sailed aboard *Lexington* to join the Seventh Fleet. The following August, VA-34, flying *Skyhawks*, departed from the East Coast aboard *Saratoga* to join the Sixth Fleet, extending *Bullpup* deployment to the Mediterranean.

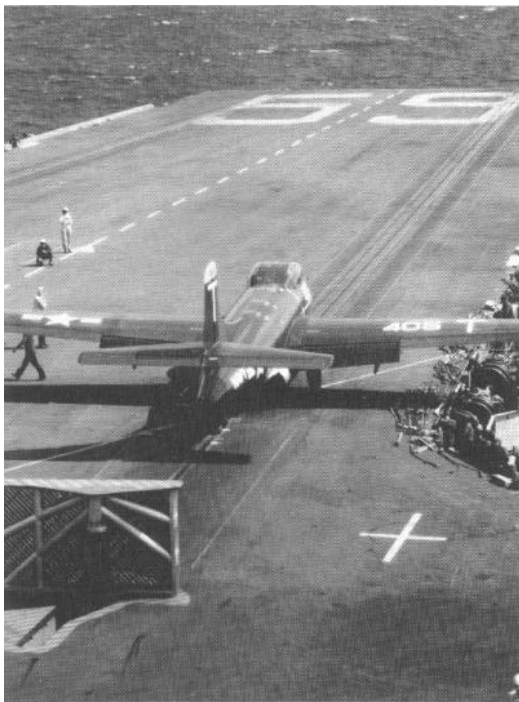
On August 25, 1959, a *Skywarrior* flown by Lieutenant Commander Ed Decker launched from *Independence* at a gross weight of 84,000 pounds. The A3D thus became the heaviest aircraft ever to take off from a carrier.

In November, during a student training flight at NAS Pensacola, 2nd Lieutenant David K. Mosher, USMC, and his instructor, Lieutenant Commander R. A. MacDonell, inaugurated use of the T2J *Buckeye* in basic training.

The *Phantom II* made its initial carrier trials in February 1960 aboard USS *Independence*. The supersonic, two-seat, twin-jet, all-weather interceptor featured long-range capabilities with conventional and nuclear bombs. The F4H first flew on May 27, 1958, and was subject to an exhaustive flight demonstration program. The aircraft was destined to play an instrumental role in the Vietnam fighting.

The year 1961 signaled the golden anniversary of Naval Aviation. In less than a lifetime, the aircraft inventory changed from fragile biplanes that cruised at 80 mph to jets that achieved supersonic speed with relative ease. One nuclear and two conventionally powered attack carriers joined the fleet that year. Before the decade of the sixties ended, two more attack carriers were commissioned.

The Navy's traditional role in controlling the sea was unchanged. A successful naval blockade was employed during the Cuban missile crisis. The round-the-world cruise of a nuclear-



An F3D jet fighter prepares to catapult off USS *Forrestal* (CV-59) in February 1956.

powered task force led by *Enterprise* and operations in the Indian Ocean carried the flag into many foreign ports. There were crises in Africa, the Middle East, Berlin and the threat of war in the Caribbean. In Southeast Asia, the U.S. responded to aggressive actions with retaliatory air strikes. War developed and the American commitment to it increased. The burden of the Navy's air war was carried by Seventh Fleet aircraft.

Nuclear Warfare

In 1943, the allied air forces in Europe tried to annihilate Hamburg, Germany. During one week in July, they flew 3,028 sorties and dropped 10,000 tons of bombs. Thirty-five percent of the city was destroyed. There were 80,000 casualties. Two years later, on August 6, 1945, a single bomber dropped one 20-kiloton nuclear weapon on Hiroshima, Japan. Much of the city was destroyed and 140,000 casualties resulted from the use of the first atomic bomb.

In the years that followed, these awesome weapons were refined, improved and eventually became a regular part of the arsenal.

By the late 1950s, aircraft were considered the key vehicle for "delivering" nuclear weapons.

The P2V *Neptune* joined the fleet in 1946 and could under certain conditions carry nuclear weapons, but the first Navy plane designed for this duty was the North American AJ-1 *Savage*. The *Savage* was prop-driven, except for a small jet engine for takeoffs and for run-ins over a target. The twin-jet *Skywarrior* became its replacement.

Two techniques were developed for high-altitude delivery of nuclear weapons: visual and radar bombing, with visual bombing planned only as an emergency backup measure. After the weapon was dropped, an escape maneuver was developed that would give maximum separation distance between delivery aircraft and burst effect.

Smaller aircraft also became nuclear weapon capable. Two of the most promising at the time were the prop-powered *Skyraider* and the *Banshee* jet. Two types of low-altitude bomb delivery were developed. The dive or glide delivery consisted of a pullout at such an altitude that the aircraft and pilot could safely escape. Secondly, there was loft bombing. Sometimes called LABS — low altitude bombing system — this procedure involved releasing the bomb during a pull-up before the aircraft pitch



An F-8 Crusader making a run against a Viet Cong stronghold in South Vietnam.

angle reached 90 degrees, the exact angle depending on target distance, aircraft speed and bomb characteristics. Loft bombing eliminated the need for aircraft to fly over what may have been a heavily defended target. After release, the aircraft flew a half Cuban-eight maneuver which provided sufficient escape distance from the blast.

In a variation of this maneuver, the bomb was not released until after the aircraft had passed the target and the pitch angle exceeded 90 degrees. The bomb was tossed back toward the target and hoisted above the airplane's turning radius. There was no need for an initial point (IP). The target was the IP. These maneuvers have been modified through the years and become sophisticated as technology improved.

The Navy was not abandoning its capability of waging a conventional war. Nuclear arms were simply considered an addition to the inventory of weapons, not a replacement for all older, time-tested bombs, rockets and the like. During the Suez crisis in 1956, for example, the Navy was the only service with an on-the-spot capability to fight a conventional style war.

With respect to the progress in research and production of nuclear weapons, the abiding philosophy was that these weapons provided insurance that the Navy could wage nuclear war and thereby effectively deter it.

On November 20, 1962, following a worldwide spell of international tension, an agreement was reached between the U.S. and the Soviet Union relative to the removal of missiles and bombers from Cuba. The naval blockade was discontinued and the ships at sea resumed normal operations.

Continued upgrading of carrier operations was manifested in the development of an automatic carrier landing system. On June 13, 1963, Lieutenant Commander R. K. Billings and R. S. Chew, Jr., of NATC Patuxent River, piloting an F-4 *Phantom* and an F-8 *Crusader*, respectively, made the first fully automatic carrier landing with production equipment, on board USS *Midway* off the California coast. The landings were made "hands off" with both flight controls and throttles operated automatically by signals from the ship. This event highlighted nearly 10 years of

research and development and followed, by almost six years, the first such carrier landing made with test equipment.

Vietnam

The war in Vietnam broke out in 1964. On August 5 the President ordered offensive action preserving the U.S. right to operate in international waters. Aircraft from *Constellation* and *Ticonderoga* attacked torpedo boats and their support facilities at five locations along the North Vietnamese coast. This marked the beginning of a costly combat era in which Navy carrier forces played a key role for the duration. Conventional arms were used throughout the war and, as they did during the Korean conflict, squadron planes flew cyclic operations from flattop to enemy territory and back almost daily. U.S. Marine Corps aircraft operating primarily from below the 17th parallel saw constant action in South and North Vietnam.

On June 17, 1965, while escorting a strike on the barracks at Gen Phu, North Vietnam, Commander L. C. Page and Lieutenant J. E. D. Batson, flying F-4B *Phantoms* of VF-21 aboard USS *Midway*, intercepted four MiG-17s. Each shot down one, scoring the first U.S. victories against MiGs in Vietnam.

The special capability of jets operating from relatively short airstrips was demonstrated on May 11, 1966, when a MAG-12 pilot in an A-4 *Skyhawk* made a catapult launch from the Marine Expeditionary Airfield at Chu Lai, Vietnam. It was the first combat use of the new land-based catapult capable of launching fully loaded tactical aircraft from runways less than 3,000 feet long.

In mid-May, USS *Intrepid* heralded its first day on the line by launching Carrier Air Wing 10, composed entirely of attack squadrons, against Viet Cong troops concentrations and supply storage areas around Saigon. The aircraft completed 97 combat sorties in a day.

In June, *Skyhawks* and F-8 *Crusaders* from USS *Hancock* made the first carrier strike against petroleum facilities in two years. This signaled the beginning of a systematic effort to destroy the Communists' petroleum storage system.

The first application of aerial mining in Vietnam took place on February 26, 1967. Seven A-6A *Intruders*, led by Commander A. H. Barrie of VA-35, planted mine fields in the mouths of the Song Ca and Song Giang rivers. The operation was aimed at stopping coastal barges from moving supplies into immediate areas.

Toward the end of April, carrier planes launched their first strikes on MiG bases in North Vietnam with an attack on Kep Airfield, 37 miles northeast of Hanoi. *Intruders* and *Skyhawks* from *Kitty Hawk* were principal planes. The A-6s attacked again the same night. While providing bomber cover during the first attack, Lieutenant Commander Charles E. Southwick and Lieutenant Hugh Wisely, in VF-114 *Phantoms*, each were credited with a probable MiG-17 kill.

On the home front, a new plane—the A-7A *Corsair II* — showed its capabilities when two of the jets, piloted by Commander Charles Fritz and Captain Alex Gillespie, USMC, made a transatlantic crossing from Patuxent River to Evreux, France. This established an unofficial record for long-distance, nonrefueled light attack jets. They flew 3,327 nautical miles in seven hours and one minute.

Meanwhile, an older plane was earning a reputation as a lifesaver in Southeast Asia. An NAS Whidbey Island, Wash., report, published in late 1968, described the value of the aircraft known as the "Whale," the A-3 *Skywarrior*.

At least 499 flak-damaged jets, valued at \$958.5 million, have made it back to their ships after air strikes over Vietnam because a "Whale" was in the air.

More than that number of Naval Aviators have not had to take the risk of ejecting because of a low fuel state.



Two heavily armed A-6A Intruders from USS Constellation (CVA-64) fly a combat mission over North Vietnam.

The Whales are KA-3B tankers. The men who fly them gave the swept-winged jets the nickname.

Skywarriors entered the early sixties as heavy attack bombers, the mission for which they were originally designed. Withdrawn from that assignment when their replacement, the A-6 *Intruders*, joined operational forces, the twin-jet *Skywarriors* were outfitted with a hose-reel assembly, pipes and a pump. They use their own internal fuel for replenishments.

The number of aircraft saved is probably much higher, since the period reported covers January 1, 1965, to August 1, 1968, and does not include

aircraft with low fuel states for reasons other than combat-connected missions.

Demonstrating the ability to project at sea expeditiously, a task group composed of the carrier *Enterprise* and screen was ordered to reverse course in the East China Sea on January 23, 1968, and to run northward to the Sea of Japan. USS *Pueblo* had been captured by the North Koreans. *Enterprise* and company operated off the South Korean coast for nearly a month. In CONUS four days later, six Naval Air Reserve carrier squadrons were activated in support of

the *Pueblo* emergency.

Top Gun

Top Gun, the Navy Fighter Weapons School at NAS Miramar, Calif., was formed in 1968, to improve aircrew proficiency in air-to-air combat. A Naval Air Systems Command study, prompted by a less than desirable kill ratio in the skies over North Vietnam, called for a higher level of weapons and tactics training. There was a need to shift all-weather fighter emphasis from heavy reliance upon radar to more eyeball-oriented tactics. In the beginning, the specially selected Top Gun instructors

flew stripped-down A-4 *Skyhawks* as "opposing" fighters in realistic practice engagements with "students" from other squadrons who flew their own unit aircraft.

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In February 1969, the Naval Air Systems Command issued a contract for development of the F-14A *Tomcat*, a variable-sweep wing fighter to succeed the F-4 *Phantom*.

On June 24, 1969, Lieutenant Dean Smith and Lieutenant Junior Grade James Sherlock of VF-103 in a *Phantom* from *Saratoga* made the first operational "hands-off" arrested landing with an AN/SPN-42 automatic carrier landing system.

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Vietnam fighting remained a priority as the decade of the seventies began but, in the next few years, the American public was to become increasingly aware of the country's critical dependence upon oil from foreign sources. An acute consciousness of the U.S. position as a two-ocean nation reemphasized the reliance upon the Navy to keep the sea lanes open to ensure the free flow of commerce.

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On March 28, 1970, the first North Vietnamese MiG kill occurred since a

November 1, 1968, bombing halt. Lieutenant Jerome E. Beaulier and Lieutenant Junior Grade Stephen J. Barkley, in a Constellation-based VF-142 *Phantom*, shot down a MiG-21 while they were escorting an unarmed reconnaissance plane near Thanh Hoa, North Vietnam.

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On April 10, the A-4M made its first flight at Palmdale, Calif. This version of the *Skyhawk* featured 50 percent more thrust than that of the first in the series, the A4D-1 of 1954. It was ideally suited for operations from short airfields in forward areas, a factor that made the plane especially valuable to the Marine Corps.

In late September, as a result of the Jordanian crisis caused by Palestinian commando attempts to unseat the monarchy in Amman, USS *Kennedy* joined *Saratoga* and *Independence* in the Mediterranean, followed by seven other U.S. Navy ships, including USS *Guam*. This strengthened the Sixth Fleet to some 55 ships which served as a standby force in case U.S. military protection was needed for evacuation of Americans and as a counterbalance to the Soviet Union's growing Mediterranean fleet.

Back on the other side of the globe the U.S. responded to an attack on an unarmed reconnaissance aircraft on November 21 and 22. Two hundred planes conducted protective reaction air strikes against North Vietnamese missile and antiaircraft sites south of the 19th parallel.

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The F-14A, piloted by Grumman test pilots Robert Smyth and William Miller, made its first flight on December 21 at Grumman's Calverton Field, Long Island, N.Y.

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In January 1971, Task Force 77, the Attack Carrier Striking Force, Seventh Fleet at the core of Yankee Station operations, interdicted the Ho Chi Minh Trail and provided air support for allied ground forces in South Vietnam.

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Marine Corps/Navy's first AV-8 *Harrier* was accepted by Major General Homer S. Hill, USMC, at Dunsfold, England, on January 6, 1971. The *Harrier* was the first vertical short takeoff and landing (V/STOL) fixed-wing aircraft ever accepted for use as a combat aircraft by U.S. armed forces. Later in the month, the Navy's newest carrier-based electronic warfare aircraft, the EA-6B *Prowler*, entered service with VAQ-129 at NAS Whidbey Island. A derivative of the two-place A-6 *intruder*, the *Prowler* was lengthened to accommodate four aircrewmembers.

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In the war zone, *Hancock*, *Ranger* and *Kitty Hawk* planes flew more than 3,000 sorties in January, most of them bombing type missions in Laos. A-6 *Intruders* and *Corsair IIs* were particularly effective in attacks against the heavy flow of supply-carrying trucks. Estimates were that the enemy was putting close to 1,000 trucks per day on the roadways.

By late February, strike sorties were averaging 122 per day because of the continuing truck movements, estimated at 1,400 a day. On March 10, *Ranger* and *Kitty Hawk* set a record 233 strike sorties for one day and went on during the ensuing six-day period to mark up a strike effectiveness record that exceeded



An A-7 Corsair II receives fuel from a Skywarrior in 1971.

Search and Rescue

recorded performances by Task Force 77 during the previous three-year period. On March 31, strike sorties launched by the carriers during the month totaled 4,535, of which nearly 4,500 were ordnance-delivery sorties. These figures were up by more than 1,000, respectively, over the previous month. Over 680 "seed" (land mine type weapons) and interdiction missions were flown during the months with unknown results. About 75 percent of the interdiction missions, however, obtained one or more road cuts while implanting seeds.

Interdiction flights in great numbers characterized Vietnam action from the carrier-based jet's vantage point.

Weather seemed to be the only foe to stifle Yankee Station efforts. In July, *Oriskany*, *Midway* and *Enterprise* served intermittently on station but operations during the month were disrupted when the flattops evaded three typhoons — *Harriet*, *Kim* and *Jean*.

Back home, the jet-powered S-3A *Viking*, the Navy's newest ASW aircraft, made its official rollout at the Lockheed-California Company's Burbank facility on November 8. This plane was designed to replace the venerable but aging S-2 *Tracker*.

Also in CONUS, Commander George White from NATC Patuxent River became the first Navy test pilot to fly the F-14A *Tomcat*. By the end of 1971, nine of the fighters were assigned to various test programs.

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On December 15, 1971, VMA(AW)-224, part of Carrier Air Wing 15 on board USS *Coral Sea*, arrived on Yankee Station. The unit was the first Marine Corps squadron to fly combat missions into North Vietnam from a carrier operating on Yankee Station.

On January 19, 1972, Lieutenant Randall Cunningham and Lieutenant Junior Grade William Driscoll in an F-4 of VF-96 off USS *Constellation* shot down a MiG-21. This action took place during a protective reaction strike in response to earlier AAA and SAM firings from an area which had menaced an RA-5C reconnaissance plane and its escorts.

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On January 21, 1972, the S-3A *Viking* conducted its maiden flight in California. The sub hunter met the Navy's requirements for a 400-knot-plus aircraft with a 2,000-mile range capability.

Countless rescue stories emanated from the war in Southeast Asia. The following one had a happy ending.

Drama and an air of uneasiness filled the Gulf of Tonkin early one summer morning as men from HC-7, the carriers *Saratoga* and *Midway*, and the frigate *Dewey* combined efforts to retrieve a Navy pilot downed more than 20 miles inside North Vietnam.

Lieutenant James R. Lloyd had launched in his A-7 from *Saratoga* on a routine bombing mission over North Vietnam at 2015 the previous evening. An hour later, things were not quite as routine. "It was just after dark and I had dropped my ordnance over some trucks moving south near Vinh," related the VA-105 pilot.

"Suddenly I had an indication of a SAM firing. It was a definite lock-on, coming at me at 12 o'clock.

"I maneuvered to avoid the SAM. The next thing I heard was a thud on my left wing and I went into a hard left roll. I looked and saw big metal sheets of my wing coming off. I really wanted to bring the aircraft out over the water. I tried to do it with the rudder but my stick was frozen. Then my plane went into a full nose-down dive, so I ejected."

Lloyd said he does not remember falling. "I just wanted to get to my radio to let them know I was alive. When I came down, I started running away from the burning plane. (I could feel the heat during my descent.) I remember hearing chickens and pigs; even the dogs barked funny. It was my state of mind, I guess," he said.

According to Lloyd, after he safely parachuted, people were running all over the countryside. "I could hear at least 300 people and see over 100. At one time some of them came within six inches of me. The men near me had guns and were firing randomly. I knew it was bad. I hid in a bush but they never did beat the one I was hiding in. My green flight suit blended in well with the vegetation."

Using his hand-held radio, Lloyd communicated with other Navy jets still overhead. "I told them that there were people in the area, that I was scared and wanted to be picked up."

Lloyd recalled that people were constantly talking and he knew he had to be quiet and furtive, and that he had to work northeast up a small hill. "Everyone

I encountered was shouting," he said. "I don't know if it was my imagination or not, but I heard my name mentioned three or four times. It could mean something in Vietnamese."

The most horrifying chapter of the adventure occurred when two men actually found Lloyd as he lay entwined in a bush.

"Something was said and I figured it was all over for me," said Lloyd. "I didn't know what to do; I just didn't move. They jabbed me in the back with a barrel of a rifle, two times, I guess. Something was said again and I heard footsteps running.

I figured one guy was standing guard. I knew I had to get away. I slowly rolled over to see who he was. To my amazement, both were running up the hill. I got up. I guess they thought I was either dead or injured. I ran like hell."

While the North Vietnamese ran north for help, Lloyd ran northeast. When automatic weapons fire began to whiz over his head, he started to crawl. "I crawled because I could see the horizon and I could feel where I was going. But the stench of the rice paddies was unbelievable."

Lloyd then moved two miles further north and, when he heard more voices, dove into a rice paddy. People came within five feet of him this time but passed by without noticing him. Seeing his chance, he again made contact with the planes above him.

"I told them to bring in the helicopter," Lloyd continued. "They tried to bring it in earlier, but they never would have made it. Calling off that first helo was probably the biggest decision of my life."

"When I was talking to the planes above, I wanted to know who I was talking to. It gets awful lonely down there," sighed Lloyd. "I found some more brush to hide in, and it was then I realized how I ached, how I stunk."

While Lloyd was on the ground, air and surface search and rescue units were far from idle. When the 27-year-old Naval Aviator ejected from his *Corsair II*, his wingman immediately assumed duties as air on-scene SAR commander, and *Dewey* became the surface SAR control ship, coordinating the efforts of the surface units and controlling the aircraft that completed the rescue.

Air intercept controllers aboard *Dewey* were kept busy during the five-hour rescue mission. RD1 Paul Moss controlled all aircraft operating inland which provided surveillance, ground suppression and the pickup of the

downed pilot. At the same time, RDC Wilmon Crowe and RD1 Antonio St. James controlled all jet aircraft operating off the coast, and RD2 James Barnett handled the reserve helicopter assets.

Chief Crowe directed in-flight refueling for 16 aircraft during Lloyd's ordeal and the destroyer *Hepburn* provided refueling for the rescue helicopter.

At 2:45 a.m., Lloyd was able to see the HC-7 SAR helo. I started to vector him in," explained Lloyd. "He had his lights on and I never thought he would do that. It made him a sitting duck. He was taking fire from all over the place. He circled the area and wanted me to show him where I was."

The SH-3A, with Lieutenant Harry J. Zinser as aircraft commander, made one approach. Lloyd jumped up in an attempt to catch the hook but missed. Helo pilot Lieutenant William D. Young then made another pass.

"This time he landed about 100 feet from me and I just ran like hell toward that beautiful single Big Mother," said Lloyd. "I just dove in."

Other crew members in the *Sea King* included crew chief AT3 Douglas G. Ankney and AMAN Mathew Szymanski, the helo's gunner who answered the

enemy's ground fire with rounds from his machine gun.

HC-7, home-based at NAS Imperial Beach, Calif., was involved in many rescue missions, most of them over water. Not since 1968 had a squadron helo gone so deep into enemy territory on a rescue mission. Most of the rescue helicopter's journey into North Vietnam was done at low altitudes and over rough mountainous terrain. "It would have killed us if we had hit a mountain or a tree," says Zinser.

When the *Sea King* returned to the carrier, a jet pilot who had been overhead during the rescue mission told the helo crew that they had been taking anti-aircraft fire at point-blank range when they touched down to pick up Lloyd.

"It was an outstanding effort by all involved," said the overjoyed Lloyd who suffered minor injuries. "It's just fantastic what so many people will do to save one life. I'm very impressed at the Navy's all-for-one, one-for-all effort."

Reactionary Air Strikes

On April 6, 1972, heavy air raids were conducted against North Vietnam, the first since October 1968 when a halt was

called on such attacks. Since that halt, the U.S. air effort had concentrated on interdicting soldiers and supplies moving along various routes into South Vietnam. Except for protective reaction strikes and a five-day operation at the end of 1971, called *Proud Deep*, very few heavy attack missions had been flown into North Vietnam. The U.S. reactionary raids were prompted by a massive invasion of South Vietnam by six North Vietnamese divisions. The objectives of these raids were the destruction of all North Vietnamese aggression supporting resources; harassment and disruption of enemy military operations; and reduction and impediment to movements of men and materials through southern North Vietnam.

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The Marine Corps demonstrated its long-range punch when elements of two *Phantom* squadrons, VMFA-115 and VMFA-232, flew into Da Nang from Iwakuni, Japan, on April 6 as part of the reinforcing effort in support of South Vietnamese troops, particularly around Quang Tri. VMFA-212 arrived from Kaneohe, Hawaii, eight days later.



An A-7A Corsair II armed with bombs prepares to launch from USS Constellation (CVA-64).

An example of Naval Air action against enemy positions inside central and South Vietnam during North Vietnam's spring offensive took place the last six days of April as *Hancock's* VAs 55, 164 and 211 struck enemy-held territory around Kontum and Pleiku and *Constellation's* VAs 146, 147 and 165 hit areas around the besieged city of An Loc in support of South Vietnamese troops, some only 40 miles outside the capital of Saigon.

Operations by Navy and Marine Corps aircraft expanded significantly throughout April. Nearly 5,000 Navy sorties in the South and 1,250 in the North were flown in the month. The Marine Corps flew 537 sorties in the South Vietnam area. The dramatic increase in Navy flights was supported by four Western Pacific carriers. *Coral Sea* and *Hancock* were on Yankee Station when the North Vietnamese's spring offensive began. *Kitty Hawk* and *Constellation* were ordered to the scene at the beginning of the month. As the days progressed in April, the Navy effort grew from 240 to more than 300 sorties a day.

The Navy unveiled the first night carrier landing trainer at NAS Lemoore on May 4, 1972. The device permitted pilots to simulate A-7E landings on carrier decks.

At 0840, on May 9, during Operation *Pocket Money*, *Intruders* and *Corsairs* from *Coral Sea*, with an EKA-36 in support, departed the vicinity of the ship. They were to execute a mining mission against the outer approaches to Haiphong Harbor. Their "time on target" was to be precisely 0900 in order to coincide with the President's public announcement in Washington that mines had been seeded. Commander Roger Sheets, wing commander, led the three A-6s, which were USMC planes from VMA-224. They headed for the inner channel of the harbor. The A-7Es, led by Commander Len Giuliani, consisted of six aircraft from VA-94 and VA-22. They were tasked with mining the outer segment of the channel. Each aircraft carried four Mk 52-2 mines.

Captain William Carr, USMC, bombardier/navigator in the lead A-6, established the critical attack azimuth

and timed the mine releases. The first was dropped at 0859 and the last of the field of 36 mines at 0901. All mines were set with 72-hour arming delays. This permitted merchant ships time for departure or a change in destination consistent with the President's public warning.

Thus began a mining campaign that planted more than 11,000 Mk 36-type destructors and 108 of the special Mk 52-2 mines over the next eight months. These missions played a large role in ultimately bringing about a stop to the war.

On May 10, *Linebacker I*, a heavy strike operation against targets throughout North Vietnam, evolved. An outgrowth of the President's mining declaration, which also stated that the U.S. would make a maximum effort to interdict the flow of supplies, the operation lasted five and a half months.

The 10th was the most intensified air-to-air combat day of the entire war. Navy flyers shot down eight MiGs. A VF-96 F-4, while engaged in aerial combat over Haiphong, shot down three of them, the first triple downing of enemy MiGs by one plane during the war. Lt. Randy Cunningham was the pilot, Ltjg. William Driscoll, his RIO. Coupled with January 19 and May 8 downings of two MiGs, this feat made Cunningham and Driscoll the first MiG aces of the Vietnam conflict.

The scope of the air war changed on May 18, 1972, when the Uong Bi electric power plant near Haiphong was struck. This signaled the beginning of strikes on targets formerly avoided, including power plants, shipyards and the Haiphong cement plant.

Beginning in late May, Navy night operations were conducted on a regular basis. In the ensuing two months, night strikes constituted 30 percent of the total Navy attack effort in North Vietnam. *Corsairs* and *Intruders* performed the bulk of this night work.

On August 5, a Naval Air Test Center pilot made the first fully automated landing aboard *Ranger* in an F-4J *Phantom*. The test landing device linked the aircraft's controls with a shipboard computer and enabled the *Phantom* to land with the pilot's hands off the controls.

The first two F-14 *Tomcat* squadrons were formed at NAS Miramar. VF-1 and VF-2, formerly disestablished units, were reactivated to receive the Navy's first new fighter plane in 14 years. The F-4 *Phantom*, introduced in 1958, was its immediate predecessor.

The war in Vietnam was winding down. The U.S. ended all tactical air sorties above the 20th parallel on October 23, 1972, and brought *Linebacker I* operations to a close. This goodwill gesture was designed to promote peace negotiations. But on December 18, *Linebacker II* was initiated after Paris peace talks were stalemated. *Linebacker II* ended on December 29 when the North Vietnamese returned to the peace table. Operations involved heavy bombing of the north above the 20th parallel. Also, there were mine reseeding missions and concentrated strikes against surface-to-air missile and anti-aircraft artillery sites, enemy army barracks, petroleum storage areas, the Haiphong naval and shipyard areas and railroad and truck stations. Navy tactical air attack sorties in *Linebacker II* were centered around Hanoi and Haiphong.

An example of an attack squadron at work in combat is contained in the following account of A-7 equipped VA-56 aboard *Midway*. The squadron ended its seventh period on the line on December 23, 1972.

Flying with CVW-5 since April, the squadron recorded 180 days on the line, flew more than 5,500 combat hours, made more than 3,000 sorties and completed 2,090 day and 781 night carrier landings. Pilots amassed 6,301 hours. VA-56 conducted strikes against such targets as the Haiphong, Ninh Binh, Ha Tinh, Kien An, Tam Da and Thanh Hoa bridge complexes; the Haiphong, Vinh, Doung Nham and Nam Dinh petroleum areas; and the Gia Lam railroad yards across the Red River from Hanoi. Other actions included mining operations and protective flights for four search and rescue missions, including one at night inside North Vietnam, and one for two Air Force officers downed off the coast. During the line periods, four of the squadron's A-7Bs were lost to AAA and SAM missile fire. Two pilots were taken prisoner, one was listed as missing in action, and one was retrieved.