

NAVAL AVIATION

NEWS



48th Year of Publication

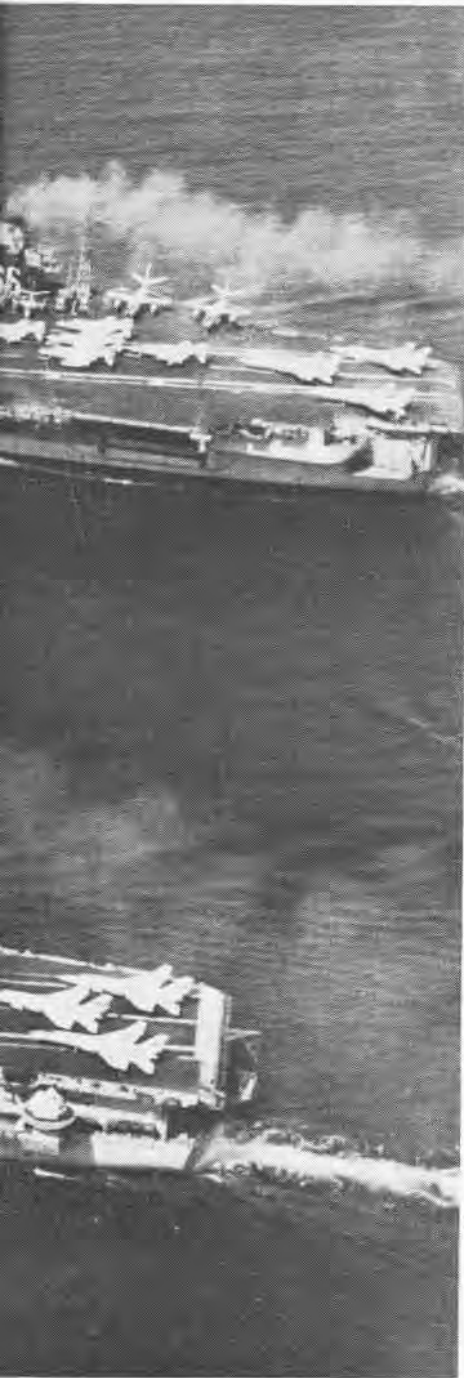
OCTOBER 1967





MEDITERRANEAN SPECTACULAR

Admiral Charles D. Griffin, Commander in Chief, Allied Forces Southern Europe, recently received the Gray Eagle trophy, signifying that he is the Naval Aviator on active duty with the earliest designation date. Vice Admiral W. I. Martin, Commander of the Sixth Fleet, presided at the ceremony, representing Vice Admiral Thomas F. Connolly, DCNO (Air). As a salute, USS America and USS Saratoga spelled out 'Gray Eagle.'



NAVAL AVIATION NEWS

FORTY-EIGHTH YEAR OF PUBLICATION OCTOBER 1967

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■ COVERS

The cover shot, taken by JOC Robert D. Moeser, shows a flight deck crewman awaiting his turn on a 7th Fleet carrier to guide Cdr. J. B. Wilkinson's A-4 Skyhawk onto the catapult. On the back cover is a photograph of Commander Harry L. Sheppard, USNR.

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NAVAL AVIATION NEWS

Safety Awards Announced CNO Praises Winning Squadrons

The Chief of Naval Operations, in announcing the Safety Awards for fiscal year 1967, congratulated the winners and commended other units as well for their contribution to the aviation safety and accident prevention program.

In his message, CNO said, "The environment and tempo of operations in FY 1967 demanded the highest individual professionalism and supervision to realize the maximum in combat readiness. Well Done."

Squadrons recognized under the criteria, established in OpNAV Instruction 3590.5G, as the safety award winners for FY 1967 are:

NavAirPac — VF-213, VA-192, AEW-11, VR-21, VAH-4, VP-6, VS-35 and HS-4.

NavAirLant—VF-84, VA-65, VA-44, VA-46, VP-5, VS-32, HS-5 and AEW-12.

FMFLant—VMFA-251, HMM-365 and VMCJ-2.

FMFPac — VMO-6, VMA-223, VMGR-152 and VMGR-352.

CNATra—HT-8 (CNABaTra), VT-27 (CNAVanTra) and from CNAResTra: VA-876, VS-934, VR-833 and HS-892.

MARTC—VMF-213, HMM-764.

VT-27 Sets Safety Record Flies 80,000 Accident-Free Hours

With a recent landing by Lt. T. D. Watson, instructor-pilot, and Ens. J. E. Curtin, student, Training Squadron 27 logged its 80,000th consecutive accident-free hour. VT-27 is commanded by Commander James H. Bergstrom.

This is the squadron's longest accident-free record in its 16-year history. The record was made in over 28 months of intensive flight training operations. During this period, 480 pilots were trained and over 130,000 landings were completed, of which 4,109 were carrier arrested.

VA-81 Aviator Wins Honor Receives Current Britannia Award

Ltjg. H. E. Houserman of VA-81, based at Cecil Field, Fla., is the recipient of the 1966 Britannia Award. It was presented by Rear Admiral Louis Le Bailly, O.B.E., British Naval Attache and Commander of the Royal Navy Staff, Washington, D.C. The presentation was made at Cecil Field.

The Britannia Award, established in 1956 by the Lord Commissioners of the Admiralty of the United Kingdom, is an annual award consisting of a scroll and a trophy.

Ltjg. Houserman's name is now inscribed on the perpetual Britannia Trophy, a sterling silver model of the Royal Navy *Vampire* jet fighter. The *Vampire* made the first scheduled jet deck landing in the world, in 1945.

The award is presented to the Navy or Marine Corps student who com-

pletes advanced flight training with the highest over-all weapons score during each calendar year.

Ltjg. Houserman won the award for his record at NAAS KINGSVILLE, Tex., while attached to VT-23. He is serving as flight officer of VA-81 as well as navigation and survival officer.

A-7 Evaluation Complete Contractual Guarantee Exceeded

The Navy has completed its maintenance and reliability evaluation of the A-7A *Corsair II* attack aircraft, amassing 733.3 flight hours, with maintenance below the 11.5 man-hours per flight hour contractual guarantee with its reliability exceeding design goals.

LTV Aerospace is the first aircraft company to have maintenance guarantee requirements written into the production contract by the Navy.

Pilots who flew the 362 flights in the program were from VA-174, VA-86 and VA-82. The latter two operational squadrons were preparing for active Fleet duty.

Six A-7A aircraft from VA-174 were assigned to the program which began May 5 and ended July 28 at NAS CECIL FIELD. New and experienced pilots flew the planes and the maintenance was performed by Navy enlisted technicians assigned to the squadron.

Two officers and 22 enlisted men from NATC PATUXENT RIVER and 16 field representatives from LTV used stop watches to time the direct maintenance man-hours required to keep the six aircraft flying. Company personnel served only as monitors and did not assist in maintaining the new attack bombers.



U. K. ADMIRAL GIVES HOUSERMAN TROPHY



FLEET ADMIRAL CHESTER W. NIMITZ



AN ARTIST'S CONCEPT OF THE NUCLEAR-POWERED USS CHESTER W. NIMITZ (CVAN-68)

Navy's 2nd Nuclear Carrier Will be Named for FAdm. Nimitz

The Navy's second nuclear-powered attack aircraft carrier, CVAN-68, will be named in honor of the late Fleet Admiral Chester W. Nimitz. Construction has not yet started.

FAdm. Nimitz was a rear admiral and Chief of the Bureau of Navigation (now BUPERS) when Japan attacked Pearl Harbor. On December 17, 1941, he was promoted to the rank of admiral over the heads of 28 senior officers and designated as Commander-in-Chief of the U.S. Pacific Fleet. On October 7, 1943, he was given the additional title of Commander-in-Chief, Pacific Ocean Areas. In this capacity, his position was analogous to that of the present-day Commander-in-Chief of the U.S. Pacific Command. He became a Fleet Admiral in 1944.

FAdm. Nimitz represented the United States at the formal surrender ceremony in Tokyo Bay on September 2, 1945, served as CNO from December 15, 1945, to December 15, 1947, and was a special assistant to SecNav from that date until his death on February 20, 1966. He made his home in Berkeley, Calif.

USS *Chester W. Nimitz* will be an improved version of *Enterprise* (CVAN-65) and the most modern warship in the world. She will be powered by the new two-reactor plant developed by the Atomic Energy Commission. The carrier will have an over-

all length of 1,092 feet, a waterline beam of 134 feet, and a full-load displacement of approximately 91,300 tons. She will be equipped with the naval tactical data system, the automatic carrier landing system, and an integrated operational intelligence center. Automation in areas of main propulsion, ordnance handling, and ship control will be included wherever safety can be improved.



THE CURRENT *Gray Eagle*, Admiral Charles D. Griffin, Commander in Chief, Allied Forces Southern Europe, a Naval Aviator since 1930, received his trophy in a ceremony aboard the USS *America* while she was anchored in the Bay of Naples, Italy. (For further details of this major event, see the inside front cover.)

Safety Review Panel Forms Admiral Russell is Named Director

On August 15, the newly created Navy Aircraft Carrier Combat Operations Safety Review Panel held its first meeting. The panel is examining procedures on carriers and will make recommendations for improvements.

The examination of causes, prevention and control of such hazards as fire and exploding ordnance was prompted by the recent USS *Forrestal* fire but is in no way connected with the investigation of that accident.

Admiral James S. Russell (Ret.), formerly Vice Chief of Naval Operations and Chief of the Bureau of Aeronautics, heads the panel.

Other members include Rear Admiral Paul D. Buie, Commander of the Naval Aviation Safety Center; rear admiral selectee Captain James L. Holloway III, former commanding officer of the USS *Enterprise*; and representatives from various technical commands within the Navy.

The panel will examine the actual and potential sources of fire and explosive accidents inherent in operation of combat aircraft, with emphasis on aircraft carriers, in an attempt to reduce both the possibility of their occurrence and the extent of damage which may result if they do occur. The panel will also determine whether the effectiveness of current fire fighting, damage control and over-all training methods can be improved.



GRAMPAW PETTIBONE

Wave Slapper

The air wing was in its second day of carrier qualifications prior to deployment. The RA-5C *Vigilante* launched from the host air station early in the morning and was recovered aboard the CVA in a routine manner. The A-5 was subsequently launched and completed four arrested landings before being hot-refueled and receiving a change of pilots.

The pre-launch check lists were completed by the new pilot. He was advised by the RAN (Radar Navigator) that on several previous launches, the other pilot had used 12 units of nose-up trim for the cat shot and experienced a slight settling. Consequently, the new pilot trimmed to 13 units nose-up and instructed the RAN to remind him to drop the hook immediately after launch to preclude bomb bay fuel transfer.

After a correct gross weight check on the cat and an observer's verification of a correct flap setting, the big *Vigilante* was launched.

As he rode down the track, the pilot applied full aft stick. Leaving the bow, he had the impression that the aircraft was settling and the nose was slightly below the horizon. When the aircraft had settled to about 30 feet with the nose still not above the



horizon, he told the RAN to eject.

The driver took his left hand from the throttles and moved it toward the left ejector handle while continually holding the stick full aft with the right hand. He then heard two explosions, saw an object flash by in the mirror (the RAN ejecting) and noted the nose moving above the horizon. (The other explosion was the aircraft's

tail impacting the water.) Satisfied that the sink rate had terminated, the cool driver decided not to eject. The A-5 commenced a rapid, healthy climb and proceeded to an overhead orbit.

Meanwhile the RAN, enjoying a very successful ejection, landed clear and was recovered by the helo.

The RA-5C, sustaining minor damages, was joined and examined by two F-4's prior to diverting to an uneventful landing ashore.



Grampaw Pettibone says:

Wowie! That wasn't a close shave, but a hairline escape. Outside of pouring more acid on my achin' ulcer for lettin' that CG back him in the corner, I ain't got nothin' but admiration for this fella's "cool."

There ain't much doubt in my mind that this driver and those about him are gonna look pretty darn close at what they got and where it is from now on.

Singled Up

The *Phantom* had just completed PAR (Progressive Aircraft Rework) and was scheduled for its initial acceptance flight. Following routine preflight, start and taxi, the F-4 executed a normal half-flap afterburner takeoff. A slight roll occurred at lift-off and the trailing edge flap showed a barber pole when the flaps were raised. After two tower fly-bys had been made to determine the flap position, the pilot (still in doubt as to the flap's position) elected to continue the test hop and climbed out with military power at 250 knots.

Shortly before the aircraft reached an altitude of 10,000 feet, the starboard engine fire warning light came on. The *Phantom* pilot retarded the throttle to 70 percent and the warning light went out momentarily but came on again in a steady glow. At that point, the driver shut down the starboard engine, commenced dumping wing fuel and decided on a single-engine approach to the nearby NAS.



At approximately the 90-degree position, the pilot noted some difficulty in maintaining the proper turn radius. On seeing that he would overshoot the runway, he elected a single-engine go-around.

But with no more options available, the committed driver was unable to arrest the sink rate sufficiently and instructed the RIO to eject. The RIO ejected posthaste. The pilot ejected just as the aircraft made ground contact at the point in time when the sink rate was almost negligible.

The RIO, unfortunately, was outside the envelope (excessive sink rate) when he ejected and was critically injured. The pilot miraculously escaped serious injury by ejecting the instant the sink rate had subsided.



Grampaw Pettibone says:

This particular mishap points out a darn good reason to follow the standard NATOPS procedures, but was a horrible way to prove the point. The manual lays it out loud and clear. If the single-engine landing procedure had been meticulously followed in this case, I'm sure things would've turned out better.

Whenever the supervisory types become complacent about enforcing NATOPS qualifications, they're askin' for trouble.

It might be considered a little nit-pickin' by the "kick the tire and light the fire" set when they are required to check out by the book before they fly, but the ole man and Gramps can shuffle the papers and breathe one heck of a lot easier knowing that pilots are, in fact, current and fully standardized.

Bet Your Life

During a carqual period, the *Crusader* driver was aboard for his duty as LSO but, since night flying was cancelled this particular night, he obtained permission to fly ashore and RON. His aircraft was originally fueled to a gross weight of 22,500 pounds, so he requested a full load of fuel for a gross weight of 28,000 pounds. While the additional fuel was being added, he conducted a normal preflight inspection and manned the aircraft on the hangar deck. In turn the F-8 was taken to the flight deck where the pilot started the aircraft and completed a normal preflight check.

Pri-Fly called the *Crusader* jockey on UHF and asked for his gross weight, and he stated it was 28,000 pounds. (This information normally passed to the catapult crew involved was not relayed, owing to a breakdown in the sound-power phone communications.)

At this point in time, all other aircraft had been launched and the *Crusader* was taxied to the catapult. The weight board man saw the F-8 taxiing to the cat and he wrote 22,500 pounds on the board as that was the weight the F-8's had been using during carquals.

While he was taxiing onto the catapult, the driver looked at the board but was unable to see it. He finished positioning the aircraft on the cat, looked once more at the weight board and saw 28,000 pounds to which he gave a thumbs-up. The

weight board (which actually read 22,500 pounds) was shown to the catapult officer who, in turn, prepared to launch the aircraft at a gross weight of 22,500 pounds.

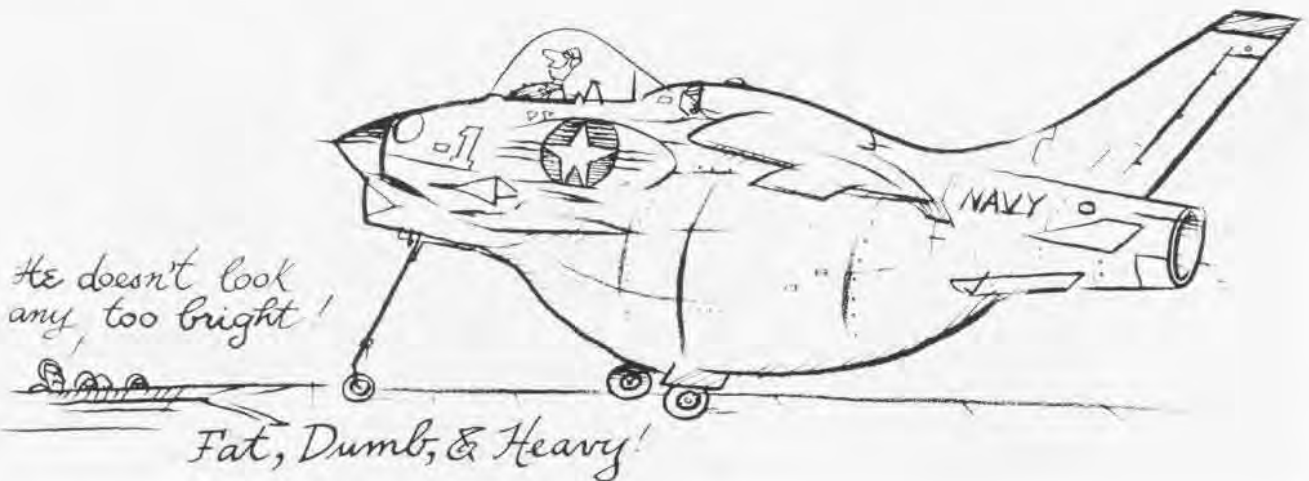
The catapult stroke felt about the same as the pilot expected for this class carrier, but he did notice some fishtailing. Immediately after leaving the deck, the *Crusader* rolled to the right, commenced a slow descent and crossed the bow from port to starboard.

Realizing he was in trouble, the pilot tried without success to level his wings and then lit the burner. The F-8 continued to settle. Acutely aware that he was about to strike the water, the rider ejected with the aircraft in a nose-high attitude, 30 degrees left bank, decelerating through 120 knots. The *Crusader* struck the water approximately 1,000 yards ahead of the ship and exploded. The pilot's chute blossomed just prior to water entry and he suffered moderate injuries. The plane guard made the pick-up in very short order and returned the pilot to the ship.



Grampaw Pettibone says:

Holy mackerel! This fella wanted to get to the beach so bad that he was gonna read 28,000 on that weight board regardless. Wishin' just don't make it so and the real hard fact remains that you gotta take that extra time and effort to make absolutely sure everyone concerned has the word. Bettin' your own life (not to mention the *Crusader*) for one night on the beach is a pretty high stake in any man's league.



He doesn't look any too bright!

Fat, Dumb, & Heavy!

BRAVE MEN OF THE USS FORRESTAL

THE DAY was a typical one for the 5,000 officers and enlisted men of the attack aircraft carrier USS *Forrestal* as the huge, 80,000-ton ship cut a wake through the calm waters of the Gulf of Tonkin. It was as typical as it could be, that is, for men at war. And the men of *Forrestal* were definitely in combat. For the first time since their ship was commissioned in October 1955, they had been launching aircraft from her flight deck on strikes against an enemy whose coastline was only a few miles over the horizon.

The ship in which these men served was the first U.S. carrier built from the keel up with the angled deck that enables aircraft to be launched and recovered simultaneously. For four days, the planes of Attack Carrier Air Wing 17 had been launched on, and recovered from, about 150 missions against targets in North Vietnam. On the ship's four-acre flight deck, her crewmen went about the business at hand, the business of accomplishing the second launch of the fifth day in combat.

Overhead, the hot, tropical sun beat down from a clear sky.

It was just about 10:50 A.M. (local time), July 29, 1967.

The launch that was scheduled for a short time later was never made.

This is the story of the brave men of the USS *Forrestal*.

It is not a story about just a few individuals. Or ten. Or twenty. Or



LINE HANDLERS on the dock at Subic Bay in the Philippines watch as the attack carrier *Forrestal* prepares to moor. Ship steamed from Gulf of Tonkin after being damaged by severe fire.

fifty. It is the story of hundreds of officers and enlisted men who were molded by disaster into a single cohesive force determined to accomplish one mission: Save their ship and their shipmates.

It is the story of the acts of heroism they performed—acts so commonplace, accomplished with such startling regularity, that it will be impossible to chronicle all of them. It will be impossible for a very simple reason: All of them will never be known.

LCdr. Robert "Bo" Browning was one of the pilots due for launch. Like many others, he was seated in the cockpit of his fueled and armed A-4 *Skyhawk*; the plane was spotted all the way aft, to port. LCdr. Browning said later he heard a "whoosh," saw a "low-order explosion" in front of him. Suddenly, two A-4's ahead of his plane were engulfed in flames; burning jet fuel—JP-5—spewed out of them. A bomb dropped to the deck,



rolled about six feet and came to rest in a pool of burning fuel.

The awful conflagration, which was to leave 132 *Forrestal* crewmen dead, 62 more injured and two missing and presumed dead, had begun.

As the searing flames, fed by the spreading JP-5, spread aft and began to eat at the aircraft spotted around the deck, LCdr. Browning escaped from his plane. He ducked under the tails of two *Skyhawks* spotted alongside his and ran up the flight deck toward the island area. Twice, explosions knocked him off balance. But he made it.

The fire soon enveloped all the aircraft in its wake. It spread to the fantail, to decks below. Bombs and ammunition were touched off in the midst of early fire-fighting efforts. Black, acrid smoke boiled into the sky. Other ships on Yankee Station sped to the aid of the stricken carrier.

As the fuel-fed fire licked at planes, ammunition and bombs, the heroes of *Forrestal* rushed to avert a total disaster; some died in the process. A chief petty officer, armed only with a small fire extinguisher, ran toward the bomb that had dropped to the flight deck. He was killed when it exploded, as were members of fire-fighting teams trying to wrestle fire hoses into position. Shrapnel from the explosion was thrown a reported 400 feet.

"I saw a dozen people running . . .

THE MOMENT of initial fire on *Forrestal's* flight deck was recorded on video tape, from which the photograph below, far left, was made. Time of photo was 10:51:55. Tape also recorded an explosion at 11:01 (below, left). In photo directly below, crewmen pour water into bomb-blasted holes in flight deck.



PROTECTED by OBA's, *Forrestal* crewmen brave smoke to fight below-decks fires through holes blasted in the flight deck (above). As destroyer maneuvers alongside and sends streams of water over (below), other *Forrestal* men battle interior fires from accesses in nearly destroyed flight deck catwalk. Hump in rear is one of the attack carrier's five-inch gun mounts.



into the fire, just before the bomb cooked off," LCdr. Browning was quoted as saying later. He called every one of them "a hero of the first magnitude."

That was only the beginning.

"There was a horrendous explosion that shook 'Angel Two Zero.' It seemed as if the whole stern of the *Forrestal* had erupted. Suddenly there were rafts, fuel tanks, oxygen tanks, drop tanks and debris of every description floating in the water below."

The description is from Lt. David Clement, pilot of a rescue helicopter from the carrier *Oriskany*, who had been asked to fly plane guard for *Forrestal* after completing a flight to the carrier. Soon, he and his crew—Ens. Leonard M. Eiland, Jr., ADJ3 James O. James, Jr., and AN Albert E. Barrows—would be on a far different mission. They would be rescuing *Forrestal* crewmen who jumped, fell or were knocked from the carrier—no less than five times within an hour. Later, they would be shuttling medical supplies to the stricken ship. The continuing explosions on *Forrestal's* flight deck would rock their helo, leaving the ship's aft end, in Lt. Clement's words, "a mass of twisted steel, with holes in the flight deck, a vacant space where there had been many aircraft and a towering column of black and gray smoke and flames."

At 11:47 A.M., *Forrestal* reported the flight deck fire was under control.

At 12:15, the ship sent word that the flight deck fire was out.

At 12:45, stubborn fires remained on the 01 and 02 levels and in hangar bay three. All available COD aircraft were being sent to the carriers *Oris-*



IN WHAT was called an act of master seamanship, a DD is maneuvered alongside carrier.

kany and *Bon Homme Richard* to be swiftly rigged with litters for medical evacuation.

There will be stories told of the brave men of *Forrestal* for years to come. These are only a few examples:

- Ltjg. Robert Cates, the carrier's explosive ordnance demolition officer, calmly recounted later how he had "noticed that there was a 500-pound bomb and a 750-pound bomb in the middle of the flight deck . . . that were still smoking. They hadn't detonated or anything; they were just setting there smoking. So I went up and defused them and had them jettisoned."

- Ltjg. Cates also told how one of his men, whom he named only as Black, volunteered to be lowered by line through a hole in the flight deck to defuze a live bomb that had dropped to the 03 level—even though the compartment was still on fire and full of smoke. Black did the job; later, Ltjg. Cates had himself lowered into the compartment to attach a line to the bomb so it could be jettisoned.

- This too from Cates: "We [Black and himself] started picking up everything we could find that had explosives in it and started throwing them over the side. Some squadron pilots came up to me as we went aft—I don't know who they were—[and] helped me take a *Sidewinder* missile off a burning F-4. We just continued working our way aft and taking what ordnance we found off aircraft and throwing it over the side."

- Two *Forrestal* flight deck crewmen, reports said, were knocked overboard by one of the explosions, fell 70 feet into the water, were picked up by a rescue helicopter and deposited back on the flight deck—and resumed fire fighting at once.

- One man in a crash crew fork-lift vehicle, with only one hose playing water on him, tried to get rid of a burning plane by ramming it repeatedly. The plane was jettisoned.

- LCdr. Larry Forderhase, ship's catapult officer, was preparing to launch aircraft when the fire broke out. He immediately started clearing the deck of bombs and rockets before helping to move planes forward.

- AE3 Bruce Mulligan, a 22-year-old VA-106 crewman, was all the way aft on the flight deck when he heard explosions. He turned, saw a "fire-ball" coming at him and hit the deck. Somehow, he managed to get forward and was headed for a fire hose when he was hit by shrapnel. He helped a

PHOTOS, in counter-clockwise direction from below left, show determined *Forrestal* men carrying missile out of hangar bay while others roll bomb toward deck edge. Damage is inspected in Subic Bay, after weary crewmen like the man at right were credited with keeping fire and blasts from doing more.





FLAG-DRAPE^D bodies of Navy men killed in fire are lowered from the deck of the CVA.



DEBRIS on flight deck is shoveled away by a crewman. Clean-up was started immediately.

HOW FORRESTAL PLANES WERE SPOTTED

THE DIAGRAM at right was taken from a drawing provided by USS *Forrestal* and shows the location of CVW-17 aircraft spotted for launch moments before the fire broke out.

No. 312—Ltjg. Don Dameworth jumped out of plane, walked to safety.

No. 417—Ltjg. David Dollarhide jumped and broke his hip. He was carried to sick bay by AN J. M. Payne and ATN3 Deloren Massey.

No. 416—LCdr. John S. McCain III was hit by shrapnel after he "tightwalked" along his refueling probe, jumped and ran across flight deck. He is O.K.

No. 405—LCdr. Fred White jumped out of plane; others came to his aid, but the first bomb exploded, killing him.

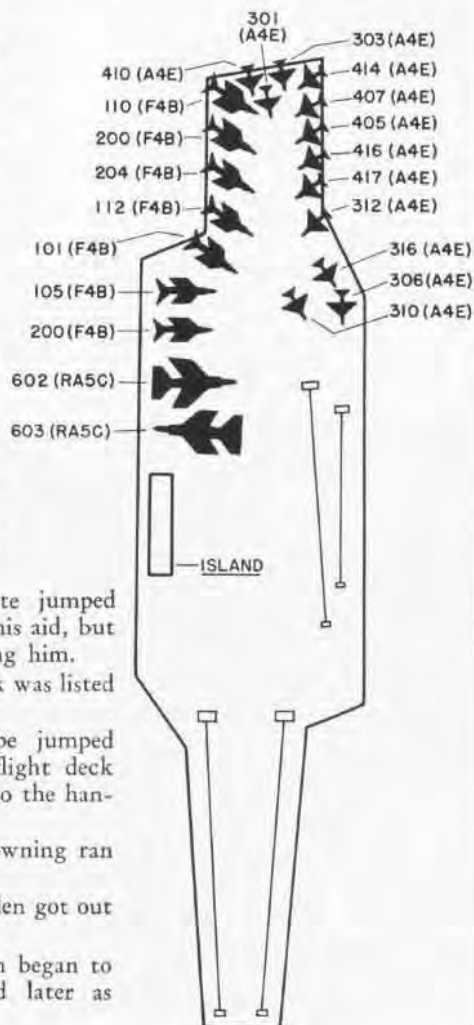
No. 407—LCdr. Gerry Stark was listed as missing.

No. 414—LCdr. Herb Hope jumped from his plane, rolled from flight deck into a safety net and escaped to the hangar deck.

No. 303—LCdr. Robert Browning ran forward on the flight deck.

No. 301—LCdr. Ken McMillen got out and ran to starboard.

No. 410—Lt. Dennis Burton began to run forward, but was listed later as missing.



friend with a broken leg get to sick bay, then returned to the flight deck.

"Back aft of the island, we started throwing missiles and rockets over the side," he recounted later. "After that was done, I looked around for some of my buddies on the line crew and I could find only one. So we decided to help them fight the fire and got the fire hoses back aft and went to fight the plane fires. My buddy and I stayed back aft for I don't know how long. We got separated and some officer said later to leave.

"I went back to the island and got my hands taken care of and stayed back there [to rest for awhile]. I was kinda groggy. I found another of my buddies and we went back aft again to help with the fire. By this time they were working on the holes in the flight deck.

"Once again, one of our officers in the squadron found me and took me down to the forecabin to rest. I stayed down there for about ten minutes, then went back aft again. . . . I stayed back there until I just about passed out and my buddy dragged me out of there. . . ."

• SN Milton Parker was just watching flight operations from the 09 level when the fire struck. Unable to get to his General Quarters station because it was cut off, he manned a hose on the flight deck for almost nine hours. He told how the heat of the deck burned both soles off his shoes, but "my feet are okay because I put on some flight deck shoes and went back in" to continue fire fighting.

• The CVW-17 operations officer, LCDr. Herb Hope, was to fly a VA-46 A-4 with a launch time of 11 A.M. When the flight deck erupted in flames, he managed to escape from his plane and, between explosions, literally rolled off the flight deck into a safety net. He made his way down to the hangar deck to coordinate the actions of a damage control party in one of the hangar bays. "The port quarter of the flight deck, where I was," he said, "is no longer there."

Fed by clothing, bedding and other flammables, the fires in the levels between the flight and hangar decks burned with an awesome fury. Men trying to locate shipmates trapped in compartments were driven out by flames and smoke. The after section of the hangar deck was so thick with smoke that it was impossible to see.

These are excerpts from an account given by Ens. Robert R. Schmidt, a 24-year-old engineering officer:

" . . . My work really wasn't the exciting kind of thing; just keeping the fire from spreading into any other areas. My people were doing all kinds of dirty work, moving into areas where the water was so hot it was almost boiling. OBA (Oxygen Breathing Apparatus) windows started fogging up and the people could hardly see anything. Yet, these kids went into the deeper areas of the ship, endangering their own lives. . . ."

At 1:48 P.M., *Forrestal* reported that the fires in the 01, 02 and 03 levels still burned, but that all the ship's machinery and steering equipment were operational.

At 2:12 P.M., the after radio compartment was evacuated because of dense smoke and water. "All fires out on 01 level, port side," the ship reported.

At 2:47, the compartment fires continued but progress was being made. *Forrestal* was steaming toward a rendezvous with the hospital ship *Repose*.

At 3 P.M., the commander of Task Force 77 announced he was sending *Forrestal* to Subic Bay, Philippines, after the carrier rendezvoused with *Repose*.

At 5:05, a muster of *Forrestal* crewmen—both in the carrier and aboard other ships—was begun. Fires were still burning in the ship's carpenter shop and on the main deck.

At 6:44, the fires were still burning.

At 8:30, the fires in the 02 and 03 levels were contained, but the area was still too hot to enter. Holes were cut in the flight deck to provide access to compartments below.

Ens. Schmidt and his damage control team continued to fight their way into burning compartments; his work later that afternoon was as an investigator for the damage control assistant. There were times he had to enter spaces that were virtually inaccessible. "I asked for volunteers," he recalled, "and I immediately had two or three who followed me back into the guts of the fire. Several times, people would come up to me and say, 'What can I do? How can I help?' . . . At first, I couldn't find work for all the people who wanted to help. I can't give enough praise to the sailors I supervised. They fought the fire and did all the dirty jobs. . . . These kids worked all night, 24-28 hours, containing the fire. . . . I've nothing but praise for the American sailor."

• On the hangar deck, a chief petty officer—his soaked clothing plastered to his body—ran from burning hangar bay three and called for five volunteers. He got 30.

• At the height of the fire, Captain John K. Beling, *Forrestal's* commanding officer, went to hangar bay two. He watched quietly for awhile, told his men they were doing well. He returned to the bridge; there was nothing more he could do.

• Filipino stewards, some who appeared to weigh no more than 100 pounds, rolled 250-pound bombs to the edges and pushed them overboard.

• With strength born of adversity, 130-pound Lt. Otis Kight single-handedly carried a 250-pound bomb to the edge of the hangar deck and threw it over the side. His shipmates are certain he will never be able to repeat that feat.

• AOC Thomas Lawler escaped from his shop on the 03 level when the first explosion occurred and the overhead "began to glow like it was on fire." For hours afterwards, he disarmed aircraft in the after hangar bays, groping his way through smoke so thick that he could see no more than a foot ahead. "I don't believe we were in very great danger in hangar bay three," he said later. "All the fires were contained in the very aft end of the hangar bay. The only thing that worried me slightly at all was on the first trip in the hangar bay when you could see practically nothing at all [but] we kept hearing a gushing, a loud, gurgling sound and we couldn't quite determine what that was and the unknown always worries you a little bit. . . ."

At 8:33 P.M., *Forrestal* reported that fires on the 02 level were under control but that fire fighting was greatly hampered because of smoke and heat.

At 8:54, only the 02 level on the port side was still burning. Medical evacuation to *Repose* was in progress.

At 12:20 A.M., July 30, all the fires were out. *Forrestal* crew members continued to clear smoke and cool hot steel on the 02 and 03 levels.

The tragedy of the hours that had passed since the fire started began to penetrate into the minds and bodies of the men aboard the carrier. The adrenalin that had pumped through them began to seep away. They were tired but they could not sleep; they walked restlessly about the ship, lending a hand wherever they could.

As time passed, volunteers were still requested and swarms of men—men who had fought the fire since 11 A.M. and who were dead tired and sick from smoke and the sights they'd seen—forgot their fatigue and their sickness and raced through passageways to man the hoses again.

Ltjg. Frank Guinan sat on the deck next to his room, too tired to get up and go inside. "It seems so unreal," he said, and he added: "Nobody had better say to me that American youth [is] lazy. I saw men working today who were not only injured but thoroughly exhausted and they had to be carried away. They were trying so hard to help but they were actually becoming a burden."

It was time, now, to begin to assess the damage. There were four gaping holes in the flight deck where bombs exploded, pushing armored steel down and under—much like an old-fashioned hole in a beer can.

Stock was taken of the aircraft. It leveled off to a report of 26 either destroyed or jettisoned and 31 more damaged to some extent.

And it was time to arrive at a final toll of dead and injured. For hours, the muster of *Forrestal* men continued; it was made terrifically difficult because so many of the crew were scattered in other ships.

And it was time to recall how those ships had come to the aid of the stricken *Forrestal*. From *Oriskany* and *Bon Homme Richard* had come medical teams and fire-fighting equipment. The skippers of the destroyers *Rupertus* and *McKenzie*, in what Rear Admiral Harvey P. Lanham, ComCarDiv Two, called an act of "magnificent seamanship," had maneuvered their ships to within 30 feet of the carrier so fire hoses could be effectively used.

But mostly it was a time to think of shipmates, those who had fought the flames and died because of their heroism. They were men like DS2 Stephen L. Hock, who was one of the first to reach the 03 level and who fought the fire and aided survivors until he was driven back by fire and smoke, then donned an OBA and returned again to the blazing area to fight the flames and help the injured. He kept up the pace for hours, then was overcome in a flooded and gas-filled compartment. Efforts to revive him were unsuccessful.

They were men like AO2 Joseph C. Shartzler who returned to the inferno on the 03 level from which he had narrowly escaped and sacrificed his life as he aided in rescuing trapped men and fighting the fire.

Material for the article on these six pages concerning the tragic fire aboard the USS *Forrestal* was compiled and edited by JOC John D. Burlage, NANews' associate editor. It was obtained from a number of sources, including message releases, press dispatches and eyewitness accounts. NANews is especially grateful to the following persons for the great assistance they provided:

Ltjg. David A. Rosow, *Forrestal* public affairs officer, and his staff: JOC Dick Wood, PHC William M. Powers and JO3 John Hammond.

Photographs accompanying the article were taken by PHC Powers, PH3 D. A. Stanbrough, PH3 T. P. Martinelli, JOSN M. T. Fleet and SN R. J. Mathison.

They were men like ABH3 Robert A. Rhuda, who could have escaped from the smoke-filled compartments where he was on duty as a police petty officer, but who remained behind to awaken and direct or physically assist shipmates out of the area—returning time and time again until the explosion of a bomb destroyed the compartment in which he was last seen.

They were men like that.

As *Forrestal* steamed for Subic Bay, a memorial service was held in Hangar Bay One for the crewmen who had given their lives for their ship and

their country. More than 2,000 *Forrestal* men listened to and prayed with Chaplains Geoffrey Gaughan and David Cooper as they paid tribute to their lost shipmates. The three volleys fired by 13 U.S. Marines were followed by the benediction, which closed the service after 15 minutes of prayer and hymns.

The heroes and the brave men aboard *Forrestal* were uniformly praised by those under whom they served. Vice Admiral C. T. Booth, ComNavAirLant, paid tribute to their courage, as did Admiral Roy L. Johnson, CinCPacFlt, Admiral E. P. Holmes, CinCLantFlt, and Paul Nitze, Deputy Secretary of Defense, who also spoke for Secretary of Defense Robert S. McNamara.

And there was this personal message to Capt. Beling: "I want you and the men of your command to know that the thoughts of the American people are with you at this tragic time. We all feel a great sense of personal loss. The devotion to duty and courage of your men have not gone unnoticed. The sacrifices they have made shall not be in vain." It was signed by Lyndon B. Johnson.

Capt. Beling also commented on his crew: "I am most proud of the way the crew reacted. The thing that is foremost in my mind is the concrete demonstration that I have seen of the worth of American youth. I saw many examples of heroism. I saw, and subsequently heard of, not one single example of cowardice."

Forrestal men were men like that.



CREWMEN watch from *Forrestal* as hospital ship *Repose* steams toward rendezvous with carrier for transfer of dead and wounded before the battered CVA sails for Subic Bay and repairs.



WITH THE NEW TWIN-BALL FIRE FIGHTING UNIT IN ACTION, A HUGE FIRE . . .

A NAVY ANSWER TO SHIPBOARD FIRES

AS NAVAL AVIATION NEWS goes to press, nine remarkable fire-fighting units are being airlifted to Yankee Station to be placed aboard the three aircraft carriers operating off Vietnam. Each carrier will be assigned three of the truck-mounted units: two for the flight deck and one for the hangar deck.

Within 24 hours after the holocaust on the *Forrestal*, Navy scientists at the Naval Research Laboratory (NRL) in Washington began a series of experimental tests and designed equipment to provide instantaneous fire-fighting capabilities for carrier flight decks.

Reasoning that the first fire is always the most dangerous one and that use of the high capacity fog foam system installed at the catwalks is much too slow in getting into action, a giant portable fire extinguisher was put together and mounted on an airfield maintenance and line service truck.

Tests showed the remarkable fire extinguishing efficiency and instantaneous action of the new system when it was demonstrated to top commands in the Office of the Chief of Naval

By Izetta Winter Robb

Operations in August.

Let's look at one of the units. This completely self-contained, self-powered system can put out all types of fires on aircraft carrier flight and hangar decks. The twin-agent system combines flame-quenching Purple-K dry chemical powder and the almost mag-

ical new foaming and cooling "Light Water" which causes it to float on aircraft fuels of all types (NANEWS, January 1967, pp. 6-7).

A new, compact, dual nozzle, especially designed for shipboard use, can be thrust into small spaces and go through narrow hatches. A 100-foot hose reels out to enable the fire fighter to operate at a distance from the tanks



THE SPHERES ON A LINE SERVICE TRUCK CARRY LIGHT WATER AND PURPLE-K-POWDER



... IS DRAMATICALLY AND EFFECTIVELY QUENCHED IN TWENTY-ONE SECONDS

holding the extinguishing agents. The system is called the Shipboard Twin-Ball Fire Fighting Unit (TBFFU).

The development of Light Water began in 1960. The intervening years at the Fire Research Laboratory at NRL have been used to find the correct synthetic chemical compounds which would be dissolved in ordinary water and result in the new fire-inerting phenomenon of sealing over the surface of fuel with water so that it becomes "fireproofed." Now the chemicals are ready and the equipment goes on carriers.

The series of pictures above shows the TBFFU in action on a 600-square-foot gasoline fire during the recent demonstration for Navy officials at NRL in Washington. The single fire fighter runs to the fire from the unit with his dual nozzle, unreeling his hose line. He attacks the fire with a blast of flame-quenching and shielding Purple-K-Powder. As he steadily progresses against the fire, he lays down a permanent sealing, cooling blanket of Light Water foam. While the driver of the line vehicle feeds him more hose, the fire fighter walks safely through the extinguished fuel, blasting with both agents. The fire is out in 21 seconds, using only one third of the fire-fighting material.



WHAT HAD SECONDS BEFORE BEEN A GASOLINE FIRE IS NOW EXTINGUISHED

WESTERN PACIFIC WEATHER PATTERNS

By LCdr. Neil F. O'Connor, USN



WEATHER AFFECTS man in his everyday life; it dictates what he will wear and often what he will eat. But weather, like man's language, is different the world over. For example, the terminology that describes seasonal variations in Southeast Asia contains expressions that frequently lead to a total misconception of the type of weather that actually exists.

A case in point is "monsoon." The word has acquired a tropical connotation which immediately brings to mind a black-and-white film starring Humphrey Bogart, in a setting that is typical of any Olongapo-type bar, ornamented with dark-eyed hostesses and bamboo. Torrential rains beat a monotonous staccato on the tin roof. Although colorful, the image isn't correct, for in reality, the word "monsoon" is synonymous with circulation. Like anything unfamiliar, the terms used to describe weather in Southeast Asia need to be defined and, in anticipation of the forthcoming season, let us consider the Northeast Monsoon.

In the United States, the cold months are known as winter, but in Southeast Asia, the season is called the Northeast Monsoon. This phenomenon, which lasts from late October to early March, occurs simply because it is winter time in Siberia. During the late and early months of the year, when the sun is low on the horizon, large masses of calm air stagnate in the topographical basin that forms eastern Russia. As winter progresses, the pools of cold air cool and the mercury continues its relentless drop, with temperatures of -40° not uncommon. In this region is Oymyakon, with a population of 3,500 people. It gained the unenviable distinction of being the coldest community in the Northern Hemisphere when a temperature of -96° F. was recorded by the local weather station. This cold air, which is denser than that of the surrounding atmosphere, constitutes an area of high pressure. By early winter the clockwise winds that flow around the system dominate most of Asia.

By January these winds have spread east to Japan, south to the Philippines, and well into the South China Sea and the Gulf of Tonkin. The circulation on the bottom side of this massive high-pressure cell brings the Northeast Monsoon and the chill of the northeast surface winds to South-

east Asia. The adverse weather in the Gulf of Tonkin and the South China Sea is the result of the frequent excursions of the southern edge of the high-pressure system toward the equator. The cold air associated with these outbreaks can quickly dispel any "Bogart concept" of tropical weather. Early this year, for example, temperatures dropped to the low 40's in the northern portion of the Gulf, and remained there for several days.

As the lengthening rays of the sun stretch northward in March, the gradual heating of the land mass slowly weakens the once-large high-pressure system, and it retreats to polar latitudes. However, the advance of the sun creates another phenomenon—the Southwest Monsoon.

The Southwest Monsoon marks summertime in Southeast Asia and lasts from March to October. Like the Northeast Monsoon, the Southwest Monsoon owes its existence and name to the circulation about a low-pressure area over India. India is physically and geographically well suited for the role of host to this summertime low, with ocean areas on three sides, and the Himalayan massif to the north. The water areas, which are much cooler than the land mass, provide the thermal contrast necessary to support the cyclonic circulation. The mountain range acts as a barrier that contains the circulation. With the sun nearly overhead, the land heats and forces the overlying air to rise, resulting in a decrease in atmospheric pressure.

By early summer, daytime temperatures soar beyond the 100° mark, pressure continues to drop, and the entire system becomes pronounced. The sharp contrast between the air temperatures over land and sea enhances the counterclockwise circulation of the low and continues to do so until the end of the summer when the sun starts its southward trek. The Southwest Monsoon brings the best weather to the Gulf of Tonkin, with partly cloudy skies the general rule. Thunderstorm activity gradually increases during the hot months of July and August, and temperatures of 90 degrees are usual on Yankee Station. With the warm weather also comes the tropical storm.

Regardless of the season, Northeast Monsoon or Southwest Monsoon, the usual weather patterns are totally disrupted at the approach of a typhoon. These storms are not

just natives of Southeast Asia, but are a serious threat to the entire Western Pacific. In the Atlantic, they are known as hurricanes, as *tainos* in Haiti, *willy-willy's* in Australia, but technically they are tropical cyclones. The latter word gives a true picture of the nature of the storm, for the term "cyclone" originally referred to the coil of a snake. Typhoons can cover an area of approximately 100,000 square miles and cause more loss of life, injury and property damage each year than any other natural catastrophe.

One such storm at sea inflicted heavy damage on the Navy in WW II. In December 1944, Task Force 38, operating off the Philippines with a fleet of some 90 ships spread over 3,000 square miles, came to grips with the rising winds and mounting seas of a fully developed typhoon. In two days of combat with Mother Nature, the Navy lost 790 men, three destroyers and 146 aircraft, while 18 ships had to be taken off the line because of major damage.

History also records that the venerable navigator Christopher Columbus experienced the wrath of a tropical storm at sea which decimated his tiny fleet. Just three years after "discovering America," Columbus embarked in *Nina* and accompanied by at least seven other ships put into Santo Domingo to ride out an approaching tropical storm. Only *Nina* survived the tempest; the remaining ships were driven ashore or capsized by the fury of the hurricane force winds.

Typhoons bring chaos to land and sea alike. In the Western Pacific, the Japanese fear and respect these storms—and with good cause. In the past 25 years, five typhoons have killed 1,000 or more people in Japan. An even more destructive one was a single typhoon in 1959 which cut a destructive swath across southern Japan and left over 5,000 dead and nearly 40,000 injured.

About 20 typhoons occur each year in the Western Pacific, although most are associated with the warmer months of the year. Spawned in an area that extends at least 500 miles to the east of Guam, they gradually intensify and move westward at a speed of eight to ten knots.

Typhoon tracks are many and varied, but normally they move in a general westerly track toward Asia during the early months of spring and summer. By midsummer they begin to take northerly excursions into higher latitudes. The point at which the storm may take a heading from



'TYPHOONS BRING CHAOS'

westerly to northerly varies, but frequently it is located just north of the Philippines. After making a turn in course, the speed gradually increases to 15 to 20 knots.

The winds that make up the typhoon circulation spiral counter-clockwise and increase around the center, where they are the highest. Maximum winds in a typhoon at sea have been estimated at 175 mph although the highest ever recorded in the Western Pacific was a 207-mph gust measured atop 11,000-foot Mt. Fuji during a typhoon in September 1966.

Probably the most intriguing characteristic of the typhoon is the "eye," the diameter of which can extend from 15 to 40 miles. The eye is usually oval although one wag suggested that it may be almond-shaped in the vicinity of Japan. Weather in the center of the typhoon eye is described as sunny with light winds prevailing. Hospitality of the center is illustrated in the stories of the eye being filled with tropical birds blown into the heart of the storm by the spiraling winds, where they are trapped and either proceed with the storm or perish.

The typhoons are probably the gravest weather threat to the Navy in Southeast Asia as well as the entire Western Pacific. Because of their extent and violence, these storms are carefully and continuously monitored. The Naval Weather Service utilizes a sophisticated typhoon surveillance system to ensure timely warnings to the Fleet. Orbiting weather satellites scan the barren wastes of the equatorial belt for the appearance of embryonic storms, and a satellite picture of an unusual cloud pattern is sufficient cause for the launching of a weather reconnaissance aircraft to probe the suspected area. Soundings taken in these penetrations are computer-collated with other environmental data to determine the nature of the disturbance and to predict its future intensity and movement. Forecasts on the development of the storm are included in Fleet broadcasts every six hours. This makes it highly unlikely that a repetition of the 1944 tragedy of Task Force 38 will occur because of lack of warning.



'IT ALL STARTS IN SIBERIA'

CONNIE'S TONKIN GULF WEATHER STATION



LCDR. Isom Brown, Connie's meteorological officer, and AG3 Kircof study latest data.

AN OMINOUS black thunderhead, capable of plunging a jet aircraft thousands of feet downward and slamming it into the earth below, is one weather situation no Navy pilot wants to encounter, especially when he is flying over enemy territory. Is the target obscured by clouds or is the ceiling high enough to dive in, bomb the target and get out?

The Weather Division aboard the U.S. Seventh Fleet attack aircraft carrier USS *Constellation* has the job of answering these, and many more, questions daily on weather conditions over North Vietnam. With these data, Connie's strike leaders plan their missions and avoid unfavorable weather.

Connie's weather station is manned by a team of highly skilled and trained Navy aerographer's mates working round the clock to give pilots an accurate picture of weather conditions over their assigned targets. In turn, the pilots feed back data on weather over North Vietnam so that the aerographer's mates can process more complete and comprehensive reports.

LCdr. Isom L. Brown, Connie's meteorological officer, quipped, "The North Vietnamese are pretty uncooperative when it comes to sending us weather reports, but our pilots in the air wing more than make up for that."

LCdr. Brown, a 26-year Navy veteran from San Francisco, Calif., has witnessed the transition of weather forecasting from the days of WW II, when it was believed that no turbulent



AIRMAN Apprentice James O. Sweet is monitoring the weather satellites *Essa* and *Nimbus*.

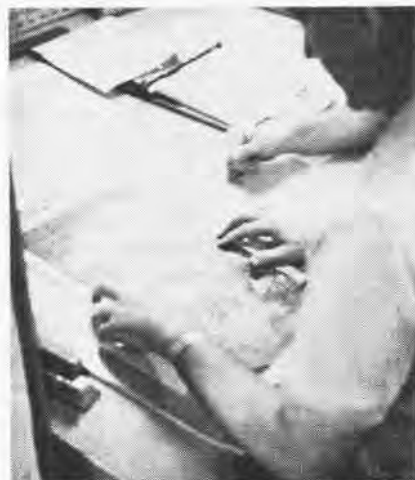
Story and photographs by JO3 R. A. Martin

weather conditions existed above 30,000 feet, to the present, in which satellites are used to record cloud cover and storms over the face of the earth and transmit the data back to receiving stations via radio. *Constellation* receives "pictures" of the weather in the Tonkin Gulf daily from weather satellites *Nimbus* and *Essa*, circling the globe at altitudes of over 600 miles. The "pictures" are then included in long-range forecasts.

In charge of interpreting this information and preparing the forecasts is AGC Joseph K. Campbell. "To get the big picture," he said, "we receive data from Guam and the Philippines over the teletype 24 hours a day. These, combined with the satellite



AG1 Robert J. Kemple broadcasts weather information over closed-circuit TV system.



LCDR. BROWN is making a careful check of the latest weather picture recorded by *Essa*.

data, information from our own weather balloons and pilots' reports, enable us to give a fairly accurate forecast for the next 36 hours.

"Weather forecasting is not an exact science," Chief Campbell continued, "but with the introduction of the computer systems and other highly sophisticated equipment of today, we can give a 75 percent accurate prediction on a long-range basis."

Twice a day the weather men release balloons with radio transmitters attached that send back temperature, wind direction, humidity and atmospheric pressure, and are tracked simultaneously by radar to provide wind data. Hourly readings are made from numerous instruments and storms are tracked across the plotting boards. After the facts and figures are compiled, an evening weather forecast is printed and distributed throughout the ship. In addition to this, Chief Campbell or one of his first class petty officers briefs pilots in their ready rooms over a closed circuit TV system. After the strikes are completed, he goes to the Air Intelligence debriefing room and gathers facts from the returning pilots. Day after day this process is repeated, maintaining the vital link in the complex chain of a team designed for war.

The 16-man team of Connie's Weather Division works long and hard. Their ultimate goal is that of every man aboard *Constellation*—to stem the tide of Communist aggression in Asia.

New Flight Path Control System Designed for ASW Helos

A flight path control system for ASW helicopters has passed preliminary flight tests. The tests were conducted on a Sikorsky SH-3 Sea King at the Naval Air Test Center, Patuxent River, Md.

The new system automatically guides an ASW helicopter through a complete submarine search mission, including hovering while the submarine-detecting sonar transducer is immersed. The control reduces flight time between sonar dips and the pilot's work load on long missions.

Before an ASW mission, the pilot feeds the system's airborne computer such parameters as the first sonar dip point, distances between subsequent dip stops, cruise altitude and speed, and hover altitude. After takeoff, the system automatically flies the helicopter through the programmed flight. At the search area, the control system lowers the helo from cruise altitude to pre-selected hover altitude. The pilot can reprogram the computer in flight to meet tactical requirements.

The system can be adapted for use on advanced V/STOL aircraft for search and rescue missions.

In addition to the computer, the system's major components consist of pilot's panel, modified automatic stabilization equipment and associated displays. The prototype was designed and built by Hamilton Standard for the Naval Air Systems Command.



AN AIRCREWMAN training course in the F-4B, given by Air Development Squadron Four at Point Mugu, is paying dividends, according to Captain C. N. Pierozzi, VP-4's C.O. These men are ready to go: AD13 Jack L. Chastin, AQ1 Richard P. Emirick, AQ1 John W. Warkentin and AQ1 Larry L. Greer. Three of the four are working for their aircrewman wings; Warkentin, already an A-3 aircrewman, is transitioning to the F-4B. The men are indoctrinated in the automatic carrier landing system, the Mk. IV gun pod, weapon systems, test hops, tactical flights.

Astronaut Returns to Navy Carpenter is Assigned to Sealab III

Astronaut-Aquanaut Commander M. Scott Carpenter is being detached from NASA and the nation's space program at the request of the Navy in order to be assigned to work in the Deep Submergence Systems Project (DSSP).

Cdr. Carpenter is one of the seven original Astronauts selected in April 1959 and the second American to orbit the earth. He piloted *Aurora 7* May

24, 1962, on a three-orbit mission. He was also backup pilot for the first orbital mission piloted by Astronaut John Glenn, February 20, 1962.

Cdr. Carpenter has long been active in the planning and conduct of the Navy's Man-in-the-Sea program which is under the cognizance of the DSSP. He served as an Aquanaut and was a team leader during the *Sealab II* experiment in 1965, during which he set a world record in underwater work, living for 30 consecutive days at a depth of 205 feet.

Assigned to DSSP, he will assist in the preparation and conduct of *Sealab III*, a 60-day experiment to be held to depths of 600 feet in 1968. As Navy's senior Aquanaut, his duties will include coordination of Aquanaut team training.

VT-6 Sets Safety Record Flies 30,000 Accident-Free Hours

When Capt. William W. Fitts, USMC, flight instructor for Training Squadron Six, returned from a routine training flight to Sherman Field, Pensacola, he had just completed the squadron's 30,000th accident-free hour.

Capt. Fitts flies the North American T-28B Trojan used by VT-6 to instruct student Naval Aviators in pre-helicopter instrument and all-weather flight procedures.



AN F-8H CRUSADER, first of a \$75-million modernization program of the Navy F-8 fighter and photographic aircraft, made its initial flight with LTV test pilot Joe Engle at the controls. The new version, formerly an F-8D, incorporated changes to extend its service life and improve its fire control systems and suitability for carrier operation. These changes include a new nose and main landing gear, a new wing with hard points for carrying external armament, structural changes for increased strength and provision for extra armor protection of vital areas. A total of 53 photo F-8's have already gone through this modernization program for Crusaders.



GEMINI 12 Astronauts, James Lovell (left) and Edwin Aldrin, are welcomed aboard USS Wash by Rear Admiral P. W. Jackson, ComCarDiv-14, after splashdown and recovery in Atlantic.



THE SPACECRAFT of Gemini 11 pilots is hoisted aboard USS Guam, prime recovery ship.

THE GEMINI RECORD OF TWELVE MISSIONS

NAVAL AVIATION NEWS takes this opportunity to list the 12 *Gemini* missions in which the Navy was so deeply involved. Not only were many of the Astronauts naval officers, but many of the others were trained by the Navy either at the Academy or at the Naval Test Pilot School at Patuxent River, Md. Furthermore, the recovery program of the *Gemini* pilots was the responsibility of the Navy surface forces and carrier-based helicopters.

Last summer 18 Astronauts received the Distinguished Flying Cross for their space flights. Four of the Navy men and three from the Air Force received gold stars in lieu of second and third DFC's: Cpts. Walter M. Schirra

and James A. Lovell, Jr., Col. L. Gordon Cooper, Cdrs. John Young and Charles Conrad, Jr., and LCol. Virgil I. Grissom and Thomas Stafford.

Others receiving DFC's were Capt. Alan B. Shepard, Jr., Cols. Frank Borman and John H. Glenn, Jr., Cdrs. M. Scott Carpenter, Eugene A. Cernan and Richard F. Gordon, Jr., LCol. James A. McDivitt, Edward H. White, David Scott, Michael Collins and Edwin Aldrin.

Only recently, in August, 11 more Astronauts were nominated. *Naval Aviation News* looks forward to the *Apollo* program and will publicize the accomplishments of the NASA team as it proceeds toward the moon.

MISSION AND CREW	DATES	DURATION	HIGHLIGHTS OF THE MISSIONS
Gemini-1 (Unmanned)	Apr. 8-12, 1964	3 revolutions 4 1/2 hours	Unmanned test of spacecraft and launch vehicle; no pick-up
Gemini-2 (Unmanned)	Jan. 19, 1965	18 min., 6 sec.	Unmanned ballistic test of spacecraft and heat shield; picked up by USS Lake Champlain, 1,848 nautical miles down the Atlantic Missile Range
Gemini-3 Virgil I. Grissom John W. Young	Mar. 23, 1965	3 revolutions 4 hrs., 53 min.	First U.S. two-man flight; first manual orbit change; picked up by USS Intrepid off Turk Island
Gemini-4 James A. McDivitt Edward H. White II	Jun. 3-7, 1965	62 revolutions 4 days, 1 hr., 56 min.	First U.S. extravehicular activity (EVA) by White (22 min.); picked up by USS Wasp, 450 miles east of Cape Kennedy
Gemini-5 L. Gordon Cooper, Jr. Charles P. Conrad, Jr.	Aug. 21-29, 1965	120 revolutions 7 days, 22 hrs., 56 min.	First 8-day manned flight; picked up by USS Lake Champlain, about 750 miles east of Cape Kennedy

MISSION AND CREW	DATES	DURATION	HIGHLIGHTS OF THE MISSIONS
Gemini-7 Frank Borman James A. Lovell, Jr.	Dec. 4-18, 1965	206 revolutions 13 days, 18 hrs., 35 min.	Ended doubts man could function under weightless conditions for two weeks without ill effects; picked up by Wasp, 700 miles southwest of Bermuda
Gemini-6 Walter M. Schirra, Jr. Thomas P. Stafford	Dec. 15-16, 1965	16 revolutions 1 day, 1 hr. 52 min.	First rendezvous in space with another manned spacecraft; picked up by USS Wasp 700 miles south of Bermuda
Gemini-8 Neil A. Armstrong David R. Scott	Mar. 16, 1966	6.6 revolutions 10 hrs., 42 min.	World's first space docking with another vehicle; precision launch of Gemini spacecraft and Agena docking vehicle using simultaneous countdown; picked up by USS Leonard F. Mason (DD-852), 500 miles east of Okinawa
Gemini-9 Thomas P. Stafford Eugene A. Cernan	Jun. 3-6, 1966	44 revolutions 3 days, 21 min.	Record EVA time by Cernan (2 hrs., 10 min.); picked up by USS Wasp, 345 miles east of Cape Kennedy
Gemini-10 John W. Young Michael Collins	Jul. 18-21, 1966	43 revolutions 2 days, 22 hrs., 47 min.	Smallest launch window (35 seconds) to date for rendezvous; deepest manned penetration into space (476 miles); first dual rendezvous with vehicles in different orbits; two EVA periods: picked up by USS Guadalcanal, 460 miles east of Cape Kennedy
Gemini-11 Charles P. Conrad, Jr. Richard F. Gordon, Jr.	Sep. 12-15, 1966	44 revolutions 2 days, 23 hrs., 17 min.	Confronted by 2-second launch window, achieved launch precisely on time to rendezvous on first orbit of docking target; 2 EVA periods; new space penetration record (850 miles); picked up by USS Guam, 700 miles off Cape Kennedy
Gemini-12 James A. Lovell, Jr. Edwin Aldrin	Nov. 11-15, 1966	59 revolutions 3 days, 22 hrs., 34 min.	Simulated Apollo program rendezvous; new world record for total EVA on single mission by Aldrin (5 hrs., 37 min.); picked up by USS Wasp, 600 miles S. E. of Cape Kennedy

U. S. ASTRONAUTS

Appointed in April 1959

Cdr. M. Scott Carpenter, USN
Col. L. Gordon Cooper, USAF
Col. John H. Glenn, Jr. USMC (Ret.)
LCol. Virgil I. Grissom, USAF (Deceased)
Capt. Alan B. Shepard, Jr., USN
Capt. Walter M. Schirra, USN
Maj. Donald K. Slayton, USAF (Ret.)

Appointed in September 1962

Neil A. Armstrong, Civilian
Col. Frank Borman, USAF
Cdr. Charles Conrad, Jr., USN
Capt. James A. Lovell, Jr., USN
LCol. James A. McDivitt, USAF
Elliott M. See, Jr., Civilian (Deceased)
LCol. Thomas P. Stafford, USAF
(Naval Academy graduate)
LCol. Edward H. White II, USAF
(Deceased)
Cdr. John W. Young, USN

Appointed in October 1963

LCol. Edwin E. Aldrin, Jr., USAF
Maj. William A. Anders, USAF
(Naval Academy graduate)
Capt. Charles A. Bassett II, USAF
(Deceased)
LCdr. Alan L. Bean, USN
Cdr. Eugene A. Cernan, USN

LCdr. Roger B. Chaffee, USN (Deceased)
LCol. Michael Collins, USAF
R. Walter Cunningham, Civilian
(Captain, USMCR, in early Fifties)
Maj. Donn F. Eisele, USAF
(Naval Academy graduate)
Capt. Theodore C. Freeman, USAF
(Naval Academy graduate, deceased)
Cdr. Richard F. Gordon, Jr., USN
Russell L. Schweickart, Civilian (USAF
officer formerly)
LCol. David R. Scott, USAF
Maj. Clifton C. Williams, Jr., USMC

Appointed in June 1965

Dr. Owen K. Garriott, Scientist
Dr. Edward G. Gibson, Scientist
Duane E. Graveline, Civilian, Flight
Surgeon (Resigned)
LCdr. Joseph P. Kerwin, USN, Flight
Surgeon
Dr. F. Curtis Michel, Scientist
Dr. Harrison H. Schmitt, Scientist

Appointed in May 1966

Vance D. Brand, Civilian (Graduate of
U.S. Navy Test Pilot School, 1963)
LCdr. John S. Bull, USN
Maj. Gerald P. Carr, USMC
Maj. Charles M. Duke, USAF
(Naval Academy graduate)
Maj. Joe H. Engle, USAF

LCdr. Ronald E. Evans, USN
Maj. Edward G. Givens, Jr., USAF
(Naval Academy graduate, deceased)
Fred. W. Haise, Jr., Civilian (U.S.
Marine Corps Officer)
Maj. James B. Irwin, USAF (Naval
Academy graduate)
Dr. Don L. Lind, Civilian (Lieutenant
Commander, USNR)
Capt. Jack R. Lousma, USMC
LCdr. Thomas K. Mattingly II, USN
LCdr. Bruce McCandless II, USN
Cdr. Edgar D. Mitchell, USN
Maj. William R. Pogue, USAF
Maj. Stuart A. Roosa, USAF
John L. Swigert, Jr., Civilian
LCdr. Paul J. Weitz, USN
Maj. Alfred M. Worden, USAF

Appointed in August 1967

Dr. Joseph P. Allen
Dr. Philip K. Chapman
Dr. Anthony W. England
Dr. Karl G. Henize
Dr. Donald L. Holmquest
Dr. William B. Lenoir
Dr. John A. Llewellyn
Dr. Franklin S. Musgrave
Dr. Brian T. O'Leary
Dr. Robert A. Parker
Dr. William E. Thornton



AN HMM-363 PILOT WALKS TO HIS PLANE TO COMMENCE ANOTHER DAY OF TRANSPORTING FIGHTING MEN

MARINE FLY AN

Marine helicopters record high and low altitudes where they perform operations by transporting supplies to critical zones and airlifting fighting men. Whether they fly intelligence teams, medical supplies, food or equipment, helicopters are critical to the success of the Marine Corps.



ON A MORNING LIFT, ELEMENTS OF FIRST BATTALION 4TH MARINES BOARD COPTERS ON WAY TO ZONE NORTHWEST OF PHU BAI

PILOTS SERVE

are writing their
war in Vietnam skies
in many missions.
They support ground
fighting men and
rescue points in the con-
tingents, Marine
troops into the landing
zones on their return.
As an infantry unit, an
operator supplies of ord-
nance, the Marine
goes to the action.



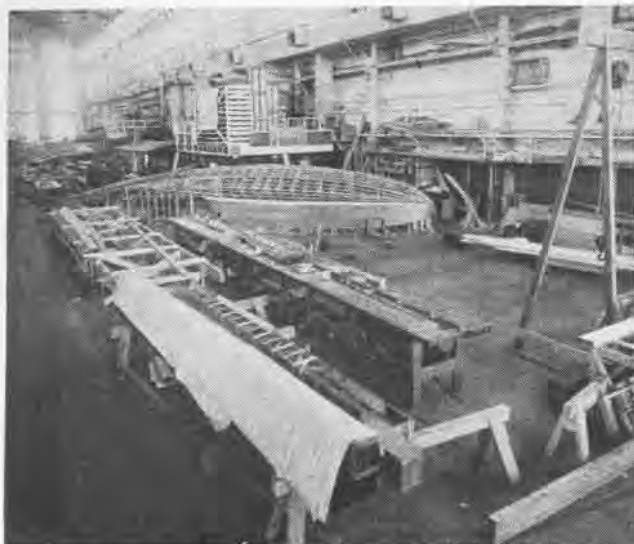
A SEA KNIGHT HELO OF HMM-165 FRAMES ANOTHER



THIRSTY CHOPPERS ARE LINED UP FOR REFUELING



TWO SEA KNIGHTS ARE EN ROUTE HOME AFTER INSERTING UNIT OF VIETNAMESE AND SPECIAL FORCES ADVISORS ON MAJOR STRIKE



THE EXPERIMENTAL SHOP IN THE LAST SIX MONTHS OF THE WAR



THE PROPELLER SHOP OCCUPIED A LARGE SECTION OF THE PLANT

Naval Aviation in World War I

THE NAVY BUILDS AN AIRCRAFT FACTORY

Aircraft, bases and men were the three keys to success in the wartime expansion of Naval Aviation. Base construction, which began within a month of the declaration of war, would soon provide a network of stations to support operations on both sides of the Atlantic. Provisions for training large numbers of officers and men had been made and would shortly produce the much needed qualified personnel. Only the aircraft procurement problem remained. The prospect that needs would quickly outstrip the existing manufacturing potential made the situation urgent.

ONE OF THE NOTABLE achievements of Naval Aviation in World War One was the establishment of the Naval Aircraft Factory at Philadelphia.

Shortly after the United States entered the war in 1917, the Navy found it feasible to construct and put into operation its own aircraft factory. It appeared unlikely that existing aircraft plants in the country would be able to cope with the large orders being thrown upon them by the Army and the Navy. It seemed wise to the Navy, therefore, to consider building at once an aircraft factory under Navy ownership.

The Navy had three objectives in establishing such a plant: to manufacture at least a part of Navy aircraft under the direction and control of the Navy Department; to have a plant in which aircraft could be designed and developed under the close direction and supervision of the Navy Department and its bureaus; and to accumulate data by which the Navy could be guided in dealing with questions of cost arising out of contracts with

By Izzetta Winter Robb

privately owned aircraft factories.

In June 1917, therefore, the Navy Department directed Commander F. G. Coburn, USN, Construction Corps, to make a survey of the situation and report upon a suitable location for, size of, and cost of a naval aircraft factory which would be capable of producing 1,000 training seaplanes a year or their equivalent. Commander Coburn visited various private plants in the country and made a detailed study of the Curtiss Company plant in Buffalo, at that time the only factory in the country that could be considered a quantity-producing plant for airplanes.

Upon completing the tour, Commander Coburn, with Naval Constructor L. M. Henry, wrote a report entitled, "Proposed Naval Aircraft Factory." This report, meeting with the approval of the head of the Bureau of Construction and Repair, David W. Taylor (for whom the Model Basin at Carderock, Md., was

named), was forwarded July 10 to SecNav, bearing Chief Constructor Taylor's endorsement—and recommendation.

On July 27, Secretary of the Navy Josephus Daniels, acting upon the recommendation, approved the project, estimating the cost at \$1,000,000. The Philadelphia Navy Yard was selected for the new venture since ample land was available there and the location was advantageous in terms of labor, material and transportation. Furthermore, the Delaware River offered a natural facility for testing seaplanes.

Construction was to include a main building for the factory proper and three auxiliary buildings—a dry kiln, dry lumber storehouse, and boiler house. Commander Coburn estimated the minimum time required to put the factory into operation at 100 days.

Believing as SecNav so succinctly (and prophetically) put it in his 1918 Annual Report that "aircraft [had] come to stay," the Navy built the new factory as a permanent structure. A temporary one would have cost very

little less and building for the future was a better investment.

No time was lost. The contract was let on August 6, and the ground broken four days later. The first power-driven machinery was put in operation on October 16, and the entire plant was completed by November 28, 1917, 110 days after breaking ground. Commander Coburn was appointed as first manager of the factory and reported at the Philadelphia Navy Yard for this duty August 27, 1917.

The first mechanic was employed on October 1. Employment posed a difficult problem, particularly at the beginning, for most of the employees, including superintendents, engineers, inspectors and foremen, had to be trained to execute their particular tasks. Of 400 engineers and technical men, not more than ten had had previous airplane experience. By executive order of August 23, 1917, special classes of employees were exempt from competitive examination, but others were obtained in accordance with Civil Service regulations.

THE NAF log indicates that the first women employees went to work in December in the Inspection Department, inspecting turnbuckles. Special efforts were made to use and train women employees, and on April 10, 1918, the women's apprenticeship school opened at the factory. By the end of the war, women made up practically 25 percent of the entire force. They were employed on the principle of equal pay with men for equal work.

A training school was also conducted for enlisted men who were sent abroad for assembly and repair of planes. On January 26, 1918, an ensign arrived from Pensacola to make arrangements for the first group of 50 men from Pensacola to get this training. They arrived on the 28th.

The original proposal for the factory had envisioned the building of training planes only, but this plan was quickly revised since enough trainers were being built by other factories and what was needed were types of aircraft suitable for antisubmarine patrol and convoy duty. The Factory therefore began work on the production of Curtiss H-16 twin-engine flying boats. On October 12 the form for the first boat was laid and the work of ordering material and putting the H-16 into production began. On

October 17 actual work on the first boat was started and, on November 2, the first keel was laid.

The upper wing span of the big flying boat measured 96 feet and its hull was 46 feet long. It was powered by two Liberty engines, armed with four machine guns, and carried a crew of four or five—a pilot, one or two observers, a mechanic and a wireless operator.

Plans for the H-16 had to be completely redrawn to fit the production methods employed by the Factory. While the Curtiss Company's experienced foremen and skilled workmen did not need absolutely clear, detailed drawings of every minor part, the inexperienced NAF employees required complete information. This careful and thorough redrawing of the plans, which required the better part of two months, was the work of the Factory's first Chief Engineer, George R. Wadsworth, a major in the Signal Corps, USA, serving in this capacity while on active duty.

On March 27, 1918, just 228 days after ground was broken and only 151 days after receipt of the original plans, the first NAF-built H-16 made its initial flight. A few days later, this aircraft and another H-16 were shipped to Killingholme, England, for war service overseas. These were the first of 50 authorized under the Factory's original contract, the last of which was completed on July 7.

In citing this accomplishment, Secretary of the Navy Daniels wrote, "Too much praise can not be given to Commander F. G. Coburn, the capable naval constructor and executive under whose direction this plant was constructed and is operated."

By December 1917, expansion of the planned operating program required an upward revision of scheduled aircraft procurement. The new schedule called for delivery of a total of 864 twin-engine flying boats

of the H-16 or similar type by January 1, 1919. The total requirement exceeded not only the number on order but also the capacity of existing manufacturing plants. An enormous expansion of the Naval Aircraft Factory was therefore authorized.

It was estimated that \$3,250,000 would be required to build the new facilities. Subsequently, an additional \$500,000 was needed to cover the cost of a hangar and certain waterfront improvements. In addition to the hangar, there was to be a six-story concrete storehouse and a three-story office building; the assembly building was to be enlarged. When, in June 1918, the original plant was in full production, the new one was very nearly completed. The total space available upon completion was 888,935 square feet, of which 500,000 square feet were used in the manufacture and assembly of aircraft. The rest was devoted to office space and storage.

The assembly building consisted of two parts: a low building 13 feet under the roof trusses for panel shop, varnish and dope room, and pontoon manufacture, and a bay—100 feet wide, 51 feet under the trusses and 680 feet long for final assembly—which was flanked on either side by a bay of equal size, 50 feet wide and 30 feet under the trusses. The 100-foot bay was equipped with two ten-ton, three-motor, overhead traveling, electric cranes. Each of the side bays was equipped with a two-and-a-half ton small crane.

By the end of World War I, over 40 acres were occupied by the enlarged plant. A considerable increase in paving, railroad tracks, roadways, etc., was provided for in the allotment, which, including the hangar, represented a total investment of a little over \$4,000,000.

Almost before this construction program began, the NAF on February 28, 1918, received an order to produce 100 H-16's in addition to the 50 it was already building. Because there was hardly time to wait for the completion of the new buildings, an ingenious plan of sub-contracting was devised. By it, the facilities of many small manufacturers were put under contract to produce wing panels, boat hulls and other more minor parts which were delivered to the Factory for assembly. By the summer of 1918, when production was at its height,



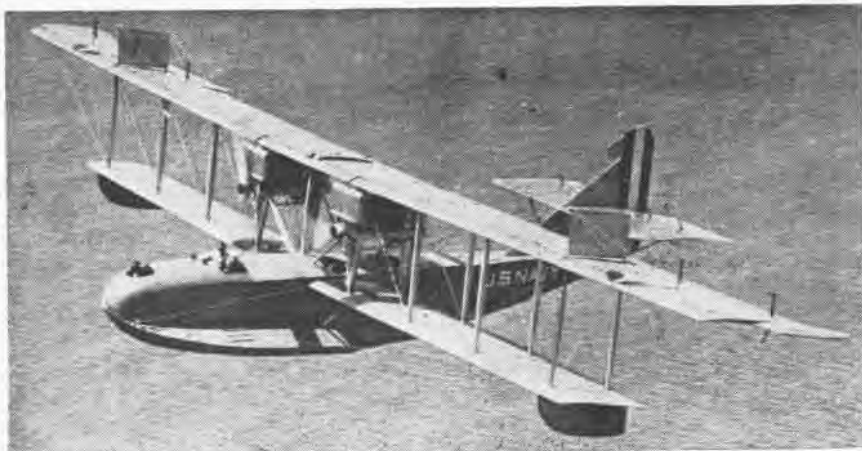
N-1 SEAPLANE ON AN EARLY TRIAL AT NAF

the assembly plant was drawing parts from the Victor Talking Machine Company, seven yacht builders, two small aircraft factories, a number of furniture factories and automobile and sheet metal products factories. Except for the two small aircraft shops, all these plants had been drawn into the work by the Naval Aircraft Factory organization which maintained branch offices in each of its contributory plants. In addition to the nearly 3,700 persons directly engaged at the Naval Aircraft Factory, there were some 7,000 others employed in the manufacture of parts.

BY MID-SUMMER, 1918, the factory was building the F-5-L flying boat which was based on an experimental British type. It had greater endurance and was capable of carrying a heavier bomb load. Also, it was larger: its 103-foot, 9-inch wingspan was attached to a 49-foot, 4-inch hull. The F-5-L had a gross loaded weight of 13,000 pounds and a maximum speed of 89 miles per hour. Its two Liberty motors developed 360 hp each.

The British Admiralty, at the request of Admiral W. S. Sims, USN, Commander of U.S. Naval Forces in Europe, furnished the Navy Department with the drawings of the F-5. On March 15, 1918, Mr. Ward, a Royal Navy Flying Corps warrant officer, arrived from Felixstowe with the plans for the F-5 boat, of which one experimental model had been built in England. But these drawings were entirely impossible for quantity manufacture. They required hand cutting and fitting by experienced workers using materials not available in quantity.

The labor of converting H-16 plans to standard plans was slight compared with the labor involved in the complete redesign of the F-5, preserving external dimensions, of course. All metal parts had to be redesigned for machine fabrication by our methods. Since the hull in particular was considered weak by Commanders H. C. Richardson and J. C. Hunsaker, Commander Richardson completely redesigned it on a longitudinal framing system, preserving the outer lines only. The engine installation, designed for Rolls-Royce engines in the British boat, had to be redesigned to take Liberty motors. Thus the American F-5-L, resembling its British prototype only in essentials, was created.



THE H-16 FLYING BOAT WAS THE FIRST AIRCRAFT NAVY PRODUCED AT PHILADELPHIA

The *Philadelphia Ledger* of October 5, 1918, described the F-5-L, a model of which was on display at the City Hall Plaza, in terms of its lethal capacity as follows: "Directly under each of the two lower wings are two death-dealing depth bombs. These are controlled by a pilot, who, on discovery of a U-boat, can discharge any one of the bombs. Adorning the port cockpit in a ring mount is a Lewis machine gun. Another is at the rear of the plane, while two others are at either side."

In June 1918, production had reached the point of one aircraft a day. On July 7, the last of the original order of 50 H-16 flying boats was completed. The average cost of the last 20, including overhead, was less than half the average of the cost of the first ten.

The total output of the Naval Aircraft Factory to December 31, 1918, included 183 twin-engine patrol flying boats, with 50 sets of spare parts. Of the 183, the last 33 were F-5-L's.

To appreciate fully the magnitude of the job accomplished, one must remember that the Navy was only six years away from its purchase of its first aircraft, the A-1, and all the main advances in manufacture in quantity were still in the future. To start from scratch as the Naval Aircraft Factory did and be required at the same time to turn an inexperienced group of people into a force of skilled workers might well have turned into a shambles of an obstacle race gone wrong. But it did not, and the record shows that the Navy planners and designers did a magnificent job in record time.

In addition to the production figures cited, the factory also began an aircraft repair program in December

1917 and built its first experimental plane in 1918, the Navy-designed N-1 Davis Gun Carrier. Two of these were built during the war. From the receipt of the plans and specifications on January 24, 1918, it required all of four months to complete the first on May 22. When this plane met with an unfortunate accident before taking to the air, a second was ready for flight on July 25 and two days later made its first (of many) in-flight test of the Davis gun.

And then the Armistice! The NAF log for that day bears quoting: "Monday—clear: (a) Employees paraded around factory in celebration of Germany's defeat. (b) Manager Coburn spoke to all hands in front of New Office Building. (c) Factory closed down at 11:30 A.M."

Not a day was lost in cutting back, for an entry for November 12 includes this item: "Contracts for all sub-contractors were cancelled, all boats prior to 6th operation will not be completed." By the summer of 1919, the Naval Aircraft Factory had reduced its force to approximately 1,400 men.

BUT AIRCRAFT had come to stay and so had the factory. Over the years, reorganizations have drawn off some of its functions and redesignations have given it new titles, but neither could take away the record of its accomplishment as a Naval Aircraft Factory. Known today as the Ground Support Equipment Department of the Naval Air Engineering Center, the record it set as a factory in producing twin-engine flying boats during World War I will stand as one of the unique accomplishments of the war and a challenge to all its progeny.

HELO LIFT CUTS REPAIR COSTS



HELO-LIFTING A-4'S FROM REPAIR PLANT TO ATSUGI REDUCES TIME-OUT-OF-SERVICE

A HELICOPTER airlift of A-4's between repair facilities in Japan has proved tremendously successful. It has cut down out-of-service time substantially, resulting in three additional operational aircraft per day being made available. At the same time, a saving of more than \$300,000 in one year has been realized by the Commander Fleet Air Western Pacific repair activities.

The man responsible for inaugurating and coordinating the helo-lift is LCdr. Morris K. Terry. His contribution has been cited by Rear Admiral Marshall W. White, ComFAirWestPac.

The H-46 *Sea Knights* that transport the *Skyhawks* back and forth the 16 miles between NAS ATSUGI and the Japan Aircraft Company (Nippi) at Sugita belong to Helicopter Combat Support Squadron Seven. Such an airlift has reduced the time-out-of-service for each *Skyhawk* by about 16 days per aircraft and, in some cases, 20 days. Major aircraft repair is carried out for ComFAirWestPac at Sugita.

Under the old system, approximately four days were needed at the Nippi plant to assemble the aircraft and to check its flight readiness. This accomplished, the *Skyhawk* was barged to ALF Kisarazu where military personnel trimmed the engine at high power and performed the necessary checks and inspections to prepare the aircraft for flight. Adverse weather

and a shortage of ferry pilots often extended this process.

Sixteen days were usually required from the completion of repairs at Sugita to arrival at NAS ATSUGI where the aircraft was disassembled for a major inspection.

Under the new scheme, the helo-lift effectively eliminates the need for a complete assembly, function check, barge trip, re-inspection and flight to Atsugi. While still disassembled in two major sections, the A-4 is airlifted—a 15-minute flight—from Sugita to the Aircraft Maintenance Department (AMD) at NAS ATSUGI for major inspection. There is no necessity to remove tail and engine on the A-4's before inspection by AMD since engines, tail assemblies, communication and navigational gear, the ejection seat and guns now arrive at Atsugi several days prior to the arrival of the fuselage. Thus the efficient use of AMD personnel and facilities is increased.

For each day out of service, the A-4 is estimated to cost the Navy \$317.56. By contributing 1,080 more working days to the *Skyhawk* schedule this year, the helo-lift has saved \$342,965.00.

In addition to saving time, the repair costs have been lowered. When factors such as the cost of barging (\$10,260 a year), the contracted man-hours saved (\$24,408 each year) and the cost of fuel are considered, out-of-pocket savings equal \$39,479.

Two Air 'Letters' at VT-21 Brothers Join Kingsville Squadron

There were two "Letters" flying with Training Squadron 21 at NAAS KINGSVILLE recently. Ens. Thomas M. Letter reported to VT-21 for advanced pilot training. His brother, Stephen P. Letter, joined the command several weeks later—but for a different type of training. As a radar intercept officer, he was to receive approximately three weeks of jet familiarization and navigation flying in the back seat of the F-9 *Cougar*.

Training command regulations do not permit a jet student to fly with anyone but a designated Naval Aviator, so Steve and Tom, though flying together on formation flights, were in separate aircraft.

Project Manager Named To Head F-111/B Phoenix Program

Rear Admiral Albert H. Clancy, Jr., has been named project manager of the Navy's F-111B/*Phoenix* program. He succeeds Rear Admiral William E. Sweeney who retired in September. RADM. Clancy was previously assigned to the Naval Air Systems Command.

Before assuming his new duties, RADM. Clancy spent some time at the F-111 systems program office at Wright-Patterson AFB and other activities engaged in the program.



A YEAR after his escape from a prison camp in S. E. Asia, Ltjg. Dieter Dengler flies again. As a member of VC-7, NAS Miramar, he flies an A-4. He was flying a VA-145 A-1 off the USS *Ranger* when he was shot down.



'THE CONTINENTAL DIVIDE' does not keep two squadrons, VS-39 at NAS Key West and VP-9 at NAS Moffett Field, from being similarly inspired to put forth such efforts as might well be tabbed "photographic intelligence." VS-39 displays its Trackers and its safety record for the last six fiscal years. The 39,000th hour was logged by the squadron C.O., Cdr. H. F. Herbig. Members of Patrol Squadron Nine posed



with one of their Orions and spelled out "VP-9" in black cards. Often deployed to remote sites in WestPac and in the Aleutians, VP-9'ers meet a variety of weather conditions, everything from tropical storms to raging blizzards. To the left of the insignia is the C.O., Cdr. R. B. Mabon. Missing from this photograph are some 160 other VP-9 members needed to maintain operations while the picture was taken.

VMGR-252's High in Safety Chalks up 100,000 Flight Hours

Marine Aerial Refueler-Transport Squadron 252 (VMGR-252), based at MCAS CHERRY POINT, has announced that as of August 1 the squadron has logged 100,000 hours of accident-free flight. The squadron flies the mammoth KC-130F Hercules. The record hour was flown by Maj. G. W. Geraghty.

Major General Hugh M. Elwood, the Second Wing commander, personally congratulated the commanding officer of the squadron, Colonel Paul L. Hitchcock.

The accident-free string began March 9, 1959, when the then VMR-252 was flying C-119F Packet. About 20,000 of the safe flight hours were flown in the Packet. In 1961, the squadron began replacing the C-119's with the Hercules aircraft.

In 1966, the squadron received not only the CNO Safety Award for the second time but also won the FMFLant Safety Award.

VMGR-252 racks up roughly 14,000 flight hours a year, travelling to almost every part of the Free World.

25 Years at Whidbey Island Governor Proclaims a Navy Week

In September, NAS WHIDBEY ISLAND held an air show and open house to celebrate its 25th anniversary. Highlights of the air show included

antique aircraft, spacecraft, stunt fliers Bill Fornof and Dick Schramm (The Flying Professor), and the Blue Angels.

In recognition of the anniversary, Governor Daniel J. Evans proclaimed the week of September 4-10 Whidbey Island Navy Week in the State of Washington. The proclamation read in part: "The personnel of the United States Navy assigned to or based at the Naval Air Station, Whidbey Island, have distinguished themselves throughout the past quarter century in the service of their nation."

Detachment Now Squadron Change Required Administratively

Detachment Atsugi of Helicopter Combat Support Squadron One was commissioned Helicopter Combat Support Squadron Seven (HC-7) on September 1.

The new squadron incorporates units out of Cubi Point, Philippine Islands, as well as the detachment at Atsugi. Its assigned complement is 440 enlisted men and 80 officers.

The rapidly growing number of detachments assigned to the parent squadron at Naval Auxiliary Air Station Ream Field made the change to squadron status desirable from an administrative standpoint.

HC-7 will serve the Seventh Fleet by providing vertical replenishment for its ships, helicopter mine counter-

measures, SAR missions, VIP helicopter support to the Fleet commander and helicopter logistics support for other Fleet activities.

The new commanding officer of HC-7 is Commander Lloyd L. Parthemer, formerly X.O. of HC-1, NAAS REAM FIELD, Imperial Beach, Calif.

Australia Gets 2 Skyhawks First of Ten Ordered are Delivered

The first two of ten advanced Skyhawks have been delivered by the U.S. Navy to the Royal Australian Navy at the Douglas Aircraft Company, Long Beach, Calif. One is an A-4G, the other a TA-4G trainer. Australia has purchased eight of the light-attack A-4's and two of the trainers.

The new Skyhawks are distinctively marked, each featuring a red kangaroo as part of the insignia on the wings and fuselage. Both have 9,300-lb-thrust P&W J25-P-8A engines, nose-wheel steering and wing-lift spoilers.

At special ceremonies, Vice Admiral Allen M. Shinn, ComNavAirPac, handed the log books for the two aircraft to Rear Admiral G. J. B. Crabb, C.B.E., D.S.O., of the Royal Australian Navy.

The A-4G Skyhawks are designed to operate with the Australian aircraft carrier, HMAS Melbourne, an ASW ship. Later this year, the Melbourne is scheduled to arrive in California to take aboard the remaining A-4G's.

LEARNING BY DOING AT PENSACOLA

Photographs by
PH1 Joel S. Cary

AERIAL photography is a two-week phase of instruction in the Photographer's Mate "A" School at the Naval Air Technical Training Unit, NAS PENSACOLA, Fla.

This two-week period is an essential part of the 18-week basic photography course because it is highly probable most Naval and Marine Corps photographers will serve with photo-reconnaissance units during their careers.

The student receives exposed film to process and print, then staples the photos together in a rough lay aerial map to check for complete coverage of the area photographed. Once this map is approved, the student produces a wet lay aerial map which is cemented to masonite board with gum arabic.

PH3 Manning L. Keller, Jr., shown on this page, was ordered to Reconnaissance Attack Squadron Six, after graduation, for 18 weeks of photo-reconnaissance systems instruction.



PH3 KELLER'S first task is to sort out and arrange aerial photographs for the map.



HIS NEXT step is to make doubly sure that the sequence of photographs is accurate.



AT THIS POINT, he comes to the more intricate problem of correctly trimming off parts of the prints so they can be put together.



IN PREPARING a masonite board for cementing, Keller takes the final steps toward producing an aerial map of the entire target area.



AFTER ADJUSTING image points and cementing photos to the board, PH3 Keller puts on final touch: the border to set off his work.

FLEET AIR WINGS ON PATROL



FLYING the Breguet "Atlantique" and led by Commander Josef Lambertz, a German crew recently made a four-day visit to Brunswick.



CREW 8 of VP-2 was top winner of the latest Totem Pole competition at NAS Whidbey Island. Plane commander, LCDR. Briggs, holds emblem.

VP-26 Hosts German Aircrew

When Commander Josef Lambertz of the German Navy arrived with his plane, an *Atlantique*, he and his crew were welcomed to NAS BRUNSWICK, Me., by Commander J. A. Cochran, the commanding officer of Patrol Squadron 26.

Cdr. Lambertz said that his was the first aircraft bearing the Iron Cross insignia to land in the United States since before WW II. With Cdr. Lambertz for the four-day visit were four officers and ten enlisted men, all members of the Second Squadron, Naval Air Wing Three, stationed at Nordholz, West Germany.

Their aircraft, built by a NATO consortium, is flown by ASW squadrons in several NATO countries. The twin-turboprop *Atlantique* is capable of speeds up to 350 knots. Powered by Rolls-Royce engines which can deliver 6,000 shaft horsepower each, the *Atlantique* can take off fully loaded at 87,000 pounds on one engine. Normally it carries a crew of four officers and eight enlisted men.

VP-26 officers and men entertained the visiting crew. The crews had worked together when VP-26 visited the German unit overseas.

While at Brunswick, the German officers met with VP-26 officers to dis-

cuss mutual ASW problems. One morning the German aircrew opened the *Atlantique* for an inspection by all NAS BRUNSWICK personnel.

Cdr. Lambertz also met Captain W. T. Rapp, ComFairWing Three, and his chief of staff, Captain B. W. Brender.

Teachers Aboard

In a combined effort of several tenant commands, NAS BARBER'S POINT welcomed aboard 60 teachers from Hawaii and the mainland who were attending the Aerospace Teachers' Workshop at the University of Hawaii.

VP-22 provided guided tours through one of its *Orions* with crew members explaining the functions of



REAR ADMIRAL W. M. McCormick (R), newly appointed ComFairWingsLant and ComFairWing Five, visited Patrol Squadrons 3, 24, 30, 44 and 49 at Patuxent River. He is shown with Cdr. A. S. Hibbs, VP-24's C.O.

a patrol squadron and the capabilities of the P-3.

From NFO to PPT

At NAS BARBER'S POINT, VP-6 recently initiated an extensive program to train Naval Flight Officers (NFO) as Patrol Plane Tactical Coordinators (PPT).

The training program is divided into two phases, basic and advanced. Upon completing the navigation training syllabus, the prospective PPT attends lectures on squadron policy and reviews Replacement Air Group training. Included are ASW tactics, communications, qualification and training exercises, and recognition—and many hours of aircraft simulator time. The advanced phase continues the training lectures on advanced ASW tactics.

Before being nominated for PPT, the student NFO must pass an oral examination by a Tactical Evaluation Board.

FAW-11's 25th Anniversary

The Chief of Naval Operations, Admiral Thomas H. Moorer, sent his congratulations to Fleet Air Wing 11 on August 15 to commend the outfit on the occasion of its 25th anniversary. The wing, based at Jacksonville, is commanded by Captain John H. Burton, its 24th skipper.



HAWAIIAN HOMECOMING

Photographs by JOSN Phil Keller, USN

A WARM and enthusiastic welcome awaited the *Skinny Dragons* of Patrol Squadron Four when they returned to NAS BARBER'S POINT, Hawaii, after completing a six-month tour of duty in WestPac.

Wives, children and friends turned out in force to meet the 360-man outfit which had left Hawaii in January to fly antisubmarine warfare patrol as units of the Seventh Fleet. Typical of the homecomers and their greeters were, starting from lower left and moving clockwise: Commander Charles M. Walker, C.O. of VP-4, being greeted by his wife and son; ATRC John Kimmel receiving a lei from his wife; LCdr. Charles E. White, operations officer, being kissed by his daughter as his wife and son look on;

and LCdr. James Wetzel, VP-4 maintenance officer, with his son whose happiness has been interrupted by fatigue and noise.

VP-4, which flies the P-3 *Orion*, logged more than 7,000 flight hours to cover more than two million miles during the deployment to MCAS IWAKUNI, Japan. The squadron patrolled the coasts of Vietnam, operated with the carrier task forces in the South China Sea and searched and patrolled the Yellow Sea, Sea of Japan and the western reaches of the Pacific Ocean. VP-4 planes also escorted and worked with U.S. submarines.

Members of the squadron also visited Japan, Korea, Taiwan, South Vietnam, Okinawa, the Republic of the Philippines, Guam and Thailand.

SELECTED AIR RESERVE



CAPTAIN Nelson R. Charles (left), C.O. of NAS Willow Grove, talks with Lt. Galloway.



REPRESENTING nearly a century of service—just 96 years—these members of NARMU-876, NAS Alameda, posed for their picture on the occasion of AM1 Whittemore's retirement.

AIO in S.E. Asia

The first Selected Reserve air intelligence officer (AIO) to serve a 60-day period of active duty in the Vietnam area, Lt. John R. Galloway of NAIRU-931, Willow Grove, Pa., recently returned from the Fleet Intelligence Center, Pacific Facility (FICPacFac) at NAS CUBI POINT.

Lt. Galloway, a corporation lawyer for the Reading Railroad, answered a call for volunteers and became the first Reserve AIO to see action in the combat zone. Before he left, Lt. Galloway gave four days' notice to his employer and an engagement ring to his best girl.

Upon arrival at FICPacFac, he was assigned as action officer for Operation *Seadragon*. In this billet, he coordinated intelligence support for naval gunfire operations off Vietnam.

In an effort to get current intelligence information, Lt. Galloway went aboard USS *St. Paul* (CA-73) and USS *Berkeley* (DDG-15) during combat missions under enemy coastal fire. He was instrumental in setting up channels for gathering and reporting current intelligence information. While at Cubi Point, he collected data from a variety of multi-sensor sources and provided a continuous flow of information to the naval gunfire forces.

Additionally, he provided intelligence briefings for the Commander Naval Striking Force (CTF-77) and Commander Task Group 771.

For his combat service in the Vietnam area, Lt. Galloway was awarded the Vietnamese Service Medal.

NAIRU-931, commanded by Captain Edward L. Barker, also has two other officers on 60 days' active duty in S.E. Asia. LCdr. James Spurr recently departed for duty at FICPacFac and Lt. George Garbarino has recently returned from a tour on board USS *Forrestal*.

A Century of Service

Nearly a century of service has been contributed to the Naval Air Reserve program by four Weekend Warrior members of Naval Air Reserve Maintenance Unit 876 at NARTU ALAMEDA. The four, in the picture above (left to right), are LCdr. W. J. Spence, unit commanding officer, 25 years; AM1 Arthur G. Whittemore, Jr., 25 years; AD1 J. E. Findley, 21 years; and ADC Emery L. Gaal, 25 years. They were photographed as they gathered to honor Whittemore, who retired after 19 years with NARMU-876.

Captain J.M. Hestilow is commanding officer of NARTU ALAMEDA.

Versatile Reservist

The executive secretary to the Governor of Arkansas may well be the most versatile squadron pilot attached to NARTU MEMPHIS.

For the past three months, Commander Marion B. Burton, X.O. of VP-793, has been commuting from his home in Little Rock in a borrowed F-51 *Mustang*. Cdr. Burton borrows the F-51 from Mr. Robert Webb of Little Rock who bought the *Mustang* six years ago and converted it for civilian use. Cdr. Burton's air time from Little Rock to Memphis is now 20 minutes. He maintains a cruise speed of 260 mph, although the red-lined limit on the indicator is 500 mph.

As part of his civilian duties, Cdr. Burton flies corporation jet aircraft—such as the *Sabreliner*, the twin fan-jet *Falcon*, a twin-engine Beechcraft and several smaller single-engine planes. He owns two airplanes, a 1947 *Vagabond* and a 1946 *Bellanca* which he is presently rebuilding.

At present, Cdr. Burton has over 4,000 hours flying time to his credit in a wide variety of aircraft. In September 1966, he set a new world's record for the executive jet aircraft class, flying the *Falcon* jetliner from St. Johns, Nfld., to Lisbon, Portugal, in four hours, 38 minutes. He shaved

eight minutes off the old record and netted a \$25,000 prize.

On monthly weekend drills at NARTU MEMPHIS, he flies a Lockheed SP-2E Neptune patrol plane.

Carrier Qualified

Fifteen Reserve pilots "proved a point" when they completed carrier qualifications aboard USS Lexington recently.

Pilots of Attack Squadrons 741, 725 and 832 came from NARTU JACKSONVILLE, NAS GLENVIEW and NAS NEW YORK, respectively.

The qualifications ended two weeks of special active duty training for the pilots and support personnel. It began with field landings at Jacksonville and included field carrier landing practice at Cecil Field. Flying A-4B Skyhawks, the pilots made their arrested and touch-and-go landings aboard the carrier 50 miles off the coast of Pensacola, Fla. On board the carrier, they were briefed on landing operations.

"They proved their point," said Captain Jack Heishman, commanding officer of Lexington, training carrier for the Naval Air Training Command. "These pilots proved that the Reserves can get ready for active duty in a short period of time."

Five of the pilots were from New York, three from Florida and seven from Glenview. The group from Glenview included four American Airlines and two United Airlines pilots.

This is the third time since the Korean War that Reserve pilots have qualified in landing and launching operations aboard a carrier.



LISTENING to briefing officer before they begin catapult launches from USS Lexington are (left to right) LCDrs. John England and James Russ and Cdr. James Mahoney, all from VA-725.



ABOARD THE carrier, Reservists AMC Damon Christensen (right), VA-725, and AOC W. Clowney, VA-832, make a thorough check of the tail hook of an A-4B Skyhawk prior to launch.



AN A-4B Skyhawk of VA-725, NAS Glenview, shoots off the port side of the training carrier Lexington (CVS-16) during touch-and-go landing operations that were a part of the carrier qualifications for 15 Naval Air Reservists during a recent two-week training period.

AT SEA WITH THE CARRIERS



STRIKE-BOUND VF-124 F-4 PHANTOM IS LAUNCHED FROM CONSTELLATION AS THE CARRIER OPERATES OFF THE COAST OF VIETNAM

PACIFIC FLEET

CONSTELLATION (CVA-64)

A father-son team serving in *Connie* is composed of AMCS Thomas L. Hughes and AM3 Thomas L. Hughes, Jr. The father is supervisor of CVW-14's Intermediate Maintenance Activity shops and the son is assigned to VF-142.

It's a fine family relationship, except for one small problem. Dad works the day shift, but his son works nights. Despite their conflicting schedules, they often get together.

BON HOMME RICHARD (CVA-31)

The claim has been issued by *Bonnie Dick* that pilots serving with embarked CVW-21 have downed more North Vietnamese *Migs* than "all other Navy units combined."

And it all happened in one recent month, writes JOC Ron Grover. Six *Bonnie Dick* pilots downed one *Mig-17* each during air-to-air combat in May.

LCdr. T. R. Schwartz was flying an A-4 *Skyhawk* when he got his *Mig*, and the other Navy pilots were pilot-

ing F-8 *Crusaders*. They include Commander Paul H. Speer, LCdr. Marshall O. Wright, LCdr. Phillip R. Wood and Ltjg. Joseph M. Shea. Maj. James A. Hargrave, Air Force liaison officer to ComCarDiv Seven, also downed a *Mig* while flying an F-4 *Phantom II*.

More recently, pilots from *Bonnie Dick* downed three more *Migs* and damaged another during a strike on the Ta Xa petroleum-oil-lubricant facility 30 miles northwest of Haiphong.

The pilots who made the kills are Commander Marion H. Isaacks, X.O. of VF-24; LCdr. Robert L. Kirkwood and LCdr. Ray G. Hubbard. Ltjg. Phillip W. Dempewolf was credited

with a probable *Mig-17* kill. All were flying F-8's.

BENNINGTON (CVS-20)

Benn's catapults are being converted during a yard period at the Long Beach Naval Shipyard to handle the new C-2A *Greyhound* COD aircraft with a "nose-tow" launching system. The conversion, however, will not eliminate the conventional "hold-back" system *Benn* crewmen use to launch most planes.

HANCOCK (CVA-19)

Hannah is home again. The ship returned to NAS ALAMEDA, across the bay from San Francisco, after her latest cruise to the waters off Vietnam. Of the 199 days the ship was away from home, 164 were spent at sea—many of them in the Gulf of Tonkin where *Hancock* pilots flew 9,000 missions and dropped almost 7,000 tons of ordnance.

TICONDEROGA (CVA-14)

For the second time, *Ticonderoga* has been awarded the Navy Unit



ABOARD *Bonnie Dick*, Admiral T. H. Moorer, CNO, visits his brother, Capt. J. P. Moorer.

Commendation for meritorious service during a combat tour off Vietnam.

In presenting the award, then Secretary of the Navy Paul H. Nitze said, "The courage, determination and devotion to duty displayed by the officers and men of *Ticonderoga* and embarked Attack Carrier Air Wing 19 during their highly effective combat operations as a unit of the United States Seventh Fleet reflect great credit upon themselves and the United States Naval service."

The award covered the period from October 28, 1966, to May 21, 1967, when, according to the citation that accompanied the award, "*Ticonderoga* and her embarked air wing launched a series of outstandingly aggressive and professionally conducted air strikes against heavily defended military and logistic installations and lines of communications in North Vietnam, resulting in major contributions toward accomplishment of the mission of [Task Force 77]."

INTREPID (CVS-11)

SM1 Odis L. Brown is a man who has "grown up in the Navy"—at least as far as his status in life is concerned—while serving aboard USS *Intrepid*. It was seven years ago that SA Brown reported aboard the *Fighting I*. Recently, while his ship operated off Vietnam, Brown was honored as guest of honor at a party in the ship's First Class Mess marking his seven years of duty in *Intrepid*.

Two *Intrepid* crewmen, AKC Gerald W. Jenkins and SK1 A. G. Anderson, have pooled their musical talents to put a country-and-western song about the Navy on the market. Chief Jenkins wrote "Navy Wings of Gold" during CVS-11's last WestPac cruise, and Anderson recorded the song after the ship returned to the U.S. Now, with the record up for sale, both are watching the top-tune charts closely.

RANGER (CVA-61)

Ranger underwent three weeks of refresher training out of San Diego, Calif., and brought aboard squadrons of CVW-2 for the first time since she completed an intensive overhaul at the Puget Sound Naval Shipyard. Flying from the *Top Gun* in the new A-7A *Corsair II* were pilots of VA-147.

The 92,000th arrested landing aboard CVA-61 was made by Ens. Norman R. Franklin, VF-124, in a *Crusader*.

ENTERPRISE (CVAN-65)

Captain Kent L. Lee is *The Big E's* new C.O. He relieved Captain James L. Holloway III, a rear admiral selectee, during a ceremony held while the carrier was at NAS NORTH ISLAND.

KEARSARGE (CVS-33)

With Rear Admiral C. A. Karaberis, ComFAir San Diego, embarked as senior observer, *Kearsarge* underwent a week-long Operational Readiness Inspection during an at-sea period off the coast of southern California.

ORISKANY (CVA-34)

Oriskany is back on the line. The combat veteran returned to duty with the Seventh Fleet for the first time since her last deployment was cut

short by a tragic fire while the ship was operating in the Gulf of Tonkin.

One of the assignments *Big O* crewmen had to tackle was a grim one that reminded many old hands of CVA-34's own misfortune. They provided assistance to the carrier *Forrestal* after that CVA was struck by fire and explosions (see story, p. 6).

"I could just about taste the rice in the 'Hanoi Hilton,'" were the words LCdr. Demetrio A. Verich used to describe his feelings after his VF-162 *Crusader* was hit during a mission, forcing him to eject from the aircraft over a rugged, mountainous area some 40 miles south of Hanoi.

But the only rice LCdr. Verich will be eating will be that served aboard *Oriskany*—thanks to the inability of searching enemy troops to locate him during a long night he spent in North Vietnamese territory and the determination of Navy pilots to rescue him.

He was hoisted aboard an SH-3A *Sea King* rescue helicopter assigned to the ASW carrier *Hornet* after the helo's pilots, Lt. Neil R. Sparks and



WITH AN intensive overhaul at the Puget Sound Naval Shipyard completed, *Ranger* is again operating with the Fleet. The carrier recently completed three weeks of refresher training.



Ltjg. Robin Springer, braved a hail of ground fire that left a gaping, five-inch hole in the craft and knocked out its electrical system before enemy firing was suppressed by pilots in VA-152 A-1 *Skyraiders* and VA-163 A-4's.

and the SecNav Commendation for Achievement to LCDrs. K. R. Haas and K. L. Sterling, Lt. J. E. Peterson, Ltjgs. L. F. Warnken, G. A. Felgar and A. B. M. Lopez, RDC R. D. Taylor and BT2 W. D. Clay.

HORNET (CVS-12)

Hornet dropped anchor off the coast of Thailand after participating in the 1967 SEATO maritime exercise, *Sea Dog*. The exercise involved units of six SEATO nations.

TRIPOLI (LPH-10)

Tripoli crewmen logged their ship's 2,000th helicopter landing while the Navy's newest LPH was participating in *Beacon Torch*, an amphibious operation held off Vietnam.

What started as a small project has snowballed into a 12-ton avalanche of books, writing material and grooming aids for American fighting men hospitalized in *Tripoli's* 250-bed medical facility. When a wounded man is brought to *Tripoli*, he is given what is called a "*Tripoli* Tote Bag," courtesy of the ship's Officers Wives Club and residents of southern California and the Gulf Coast.

The tote bags are filled with grooming aids, paperback books and stationery, items that are often difficult for hospitalized servicemen to obtain.

The program was started by the Officers Wives Club after its members

YORKTOWN (CVS-10)

Captain W. L. Bennett relieved Captain William M. McCulley as C.O. of *Yorktown* during a ceremony held while the CVS was in Long Beach.

VALLEY FORGE (LPH-8)

During a ceremony aboard *The Happy Valley*, awards were presented for meritorious service during LPH-8's Vietnam deployment from September 7, 1966, to December 1, 1966. The awards included a Navy Commendation Medal to Commander A. R. Bott

A BIG HIT with *Hornet* crewmen is the ship's slot car race track. In photo at top of page, Ltjg. Hank Johnson and SN Darrell Keener review the list of entrants for the regular Thursday night races while crewmen look on. Other two photographs show the racers in action.



found that the materials were hard for injured men to come by and went looking for contributions. A mention by San Diego columnist Neil Morgan in his paper was enough to start donations rolling in from residents of southern California, and the word soon spread to Pascagoula, Miss., where *Tripoli* was built.

Pascagoula residents started sending materials. Then Mobile, Ala., learned of the project—and *Tripoli* was flooded with seven tons worth of contributions from the Gulf Coast. When the ship deployed for Vietnam operations, she carried with her the 12 tons of donated comfort items and nearly 900 tote bags sewn by club members.

CORAL SEA (CVA-43)

The City of San Francisco has formally adopted *Coral Sea* as "San Francisco's Own."

The "adoption" came about because San Francisco gave the NAS ALAMEDA-based carrier such a warm welcome when she returned from a Vietnam deployment last February that the crew voted to ask the city to adopt their ship. The city did not have a

namesake on the Navy's active rolls, so Mayor John Shelley accepted the request and the city's Board of Supervisors unanimously passed a resolution for the adoption.

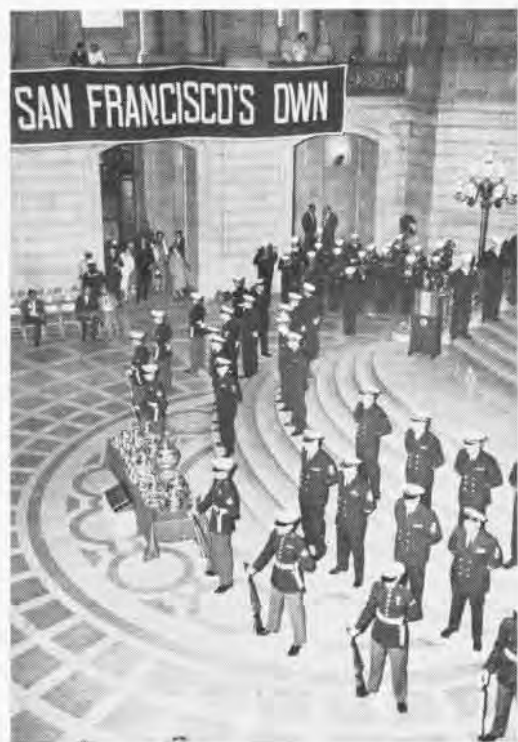
Two ceremonies actually climaxed the adoption of *Coral Sea*. In the first, the ship was inducted into the Great Golden Fleet of San Francisco.

But it was a second ceremony, this one held in the City Hall rotunda and attended by civilian dignitaries and *Coral Sea* crewmen, that really made it official. With CVA-43 officers and enlisted men in formation on the rotunda steps, special guests were introduced and the background of the ceremony was provided by the master of ceremonies, L. Jack Block, who is a member of the San Francisco Chamber of Commerce Armed Forces Committee. *Coral Sea's* C.O., Captain William H. Shawcross, was introduced to the mayor and city dignitaries. The high point of the ceremony came when Capt. Shawcross accepted the bronze plaque inscribed, "The City of San Francisco on July 24, 1967, adopts the USS *Coral Sea* as San Francisco's own ship."

CPO E. A. Arriola, a native of San



CORAL SEA became "San Francisco's Own" when the city officially adopted the ship. Photos show, from bottom left, crewmen on steps of City Hall rotunda, the priceless silver and the adoption plaque, and presentation of plaque and battle flag by city's mayor, John Shelley.





BONNIE DICK Mig-killers include from left, USAF Maj. J. A. Hargrave, LCdr. T. R. Schwartz, Cdr. P. H. Speer, LCdr. M. O. Wright, Ltjg. J. M. Sboa, LCdr. B. C. Lee, Lt. P. R. Wood.

Francisco, accepted the battle flag of the second USS *San Francisco*, a WW II cruiser, on behalf of *Coral Sea*. And, finally, the ceremonial silver—including several pieces manufactured in 1889 for the first USS *San Francisco*—was passed to the carrier.

ATLANTIC FLEET

LEXINGTON (CVS-16)

Another new carrier C.O. is Captain Edward W. Gendron, who relieved Captain Jack C. Heishman as skipper of *Lexington* during a ceremony held during an at-sea period.

Before he left for new duty as chief of staff for ComCarDiv Six, Capt. Heishman registered a claim for a new world's record for his ship. *Lex* logged

218 touch-and-go landings and 611 arrestments during a single day's operations in the Gulf of Mexico—and the captain said that beats anything anybody else has to offer.

The record was set by student pilots assigned to VT's 27, 28 and 31, based at NAS CORPUS CHRISTI, Texas.

RANDOLPH (CVS-15)

Talk about your personnel turnovers—*Randolph* has really had a dilly.

First, Captain Wynn V. Whidden relieved Captain William J. Moran as C.O. The same day, Commander Robert E. Fellows relieved Commander Ben H. Macon as ship's navigator. A short five days later, Cdr. Macon became *Wasp's* X.O. when he relieved departing Captain Robert L. Metzger. Before the week was out the crew

was again assembling on the flight deck for another change-of-command ceremony; this time Commander Edward N. Bouffard relieved Commander Richard H. Nickerson as skipper of CVSG-56.

That should have been enough for any ship, but fate—assisted by BUPERS—had other ideas. By the time *Randolph* returned to home port, Norfolk, from an at-sea period, the ship had a new chief engineer (Commander Walter J. Blaszczak), a new CATCC officer (Commander Curtis Wakeman) and a new Marine Detachment C.O. (Marine Capt. Thorvald Holm).

No wonder *Randolph* crewmen are asking, "Who's on first?"

SHANGRI LA (CVA-38)

Shang got underway from home port, Mayport, Fla., for approximately three weeks of refresher training in Guantanamo Bay, Cuba, followed by weapons firing exercises off Roosevelt Roads, Puerto Rico. Before she began the at-sea period, CVA-38 completed an overhaul and repair period at Mayport and the Norfolk Naval Shipyard.

AMERICA (CVA-66)

Captain Frederick C. Turner is *America's* new skipper. He relieved Captain Donald D. Engen during a ceremony held while the carrier was anchored off Valletta, Malta.

An F-4 *Phantom II*, with VF-33's Lt. Tom Rue as pilot and Ltjg. Dan Phillips as RIO, made CVA-66's 27,000th arrested landing.



SELECTED as *Wasp's* "Sailors of the Year," SO2 Stephen J. Barter and MM3 Gary L. Zearing are congratulated by C.O., Capt. M. R. Etheridge.



LINED UP on flight deck of *America*, four of VR-24's C-1A Traders await the word to launch while the CVA operates in the Mediterranean.

WATCHERS OF LPH-3'S 'BIG BOARD'

By JO2 Dave Colby

IF THE MEN wore suits and ties, they might be mistaken for Wall Street stockbrokers watching the "big board."

They work deep inside the helicopter assault carrier USS *Okinawa*. The small dimly lighted room, called the Supporting Arms Control Center (SACC), is sometimes crowded with as many as 40 people.

Instead of suits, personnel wear the uniforms of four branches of the services and the commodities they deal in are naval gunfire, bombs, rockets and artillery support for amphibious operations. Their "big board" in SACC plots the progress of all fire support missions in an area of operation.

Isolated from the war outside, the men make contact with the war going on ashore—naval gunfire, artillery and air strikes which go on with deadly accuracy—through three tables of radio equipment.

Like stockbrokers, they never get enough information. A Marine officer strolled into SACC during Operation *Beaver Cage* and asked how the war was going. "They call in from out there every now and then to say hello," a Navy lieutenant commander responded, meaning that SACC had not received any recent information.

When a beach assault starts, SACC is the nerve center. Full colonels, Navy captains and admirals sit tensely in the front row seats watching constantly, listening to the operation's progress and deciding what the next move should be.

To a layman, chaos seems to reign when a gunfire or air strike mission is in progress. Protocol is often ignored as a seaman or private becomes the focal point when he relays a spotter's report on coverage of a fire zone.

Everyone seems to be talking, listening and jotting down information all at the same time. But the outsider soon learns that what at first appeared to be chaos is really an effective team functioning in a tense and quickly changing atmosphere.

In Operation *Beaver Cage*, as in most amphibious assaults, the firepower available for support of the forces ashore was awesome.



EYES FOCUS ON MAPS AND CHARTS IN SUPPORTING ARMS CONTROL CENTER ABOARD LPH-3

Standing by off the coast was the cruiser *Saint Paul* with her eight-inch guns, the largest in the Fleet. On call for air support were armed HU-1E helicopters and jet attack aircraft from the First Marine Air Wing. Already ashore were Seventh Fleet Marine artillery units and, to the west, ARVN gun emplacements.

If this wasn't enough, more airpower could have been called in from aircraft carriers operating on Yankee Station or from practically any other air base in Vietnam.

Early in the morning on the first day of the operation, people clad in black pajamas were seen rushing into the tree line above the beach assault site to change clothes. Within three minutes a rocket and gun laden HU-1E was strafing the area.

Captain J. L. Lowentrout, the Navy officer in command of *Beaver Cage*, commented on these fighters by night, farmers by day, "We caught them with their pants down."

Marine Major Robert L. Gray, the officer-in-charge of the Tactical Air Control Squadron 13 detachment on the *Okinawa*, explained how targets for a gunfire mission are determined. "Although the final 'go' for these missions comes from SACC, the center must have confirmation that the forces ashore are drawing hostile fire from an area," he said, "or it must be designated by a Vietnamese province chief as an enemy stronghold. Usually we have a province chief sitting right in here with us."

Strangely, TACRon-13, which runs SACC, doesn't own a plane although it does have plenty of aviators from all branches of the services.

"We have to be able to work with all the services," said Maj. Ronald Walker, the Army Liaison Officer to TACRon. "We receive fire support from all of them and therefore we have someone that understands their methods and terminology."

Operation *Deckhouse V*, the first U.S. push into the Mekong Delta, was a good example of these mixed services working together. Maj. Gray said, "We had the Vietnamese Air Force as well as all branches of our own services flying missions for us."

The SACC is almost as mobile as the fire support it commands. TACRon-13 is divided into two detachments embarked in assault ships with the parent command in the amphibious force flagship *Eldorado*. It can go ashore when operational control is passed or it can work from almost any other amphibious ship.

VA-27 is Put in Commission Will Fly the A-7A Corsair II

VA-27, commissioned September 1 at NAS LEMOORE, is the third A-7A squadron on the West Coast. Following his remarks, Captain T. M. Smyer, Assistant Chief of Staff, ComFAir Alameda, directed the prospective C. O., Commander George T. Pappas, to place the squadron in commission.

CORIOLIS EFFECT

BECAUSE OF THE EARTH'S ROTATION, ANY OBJECT MOVING ACROSS IT IN THE NORTHERN HEMISPHERE APPEARS TO BE SUBJECTED TO A DRIFT TO THE RIGHT. THIS IS CALLED THE CORIOLIS EFFECT AND ARISES FROM THE MOTION OF AIR WITH RESPECT TO THE GROUND.



IF A MISSILE WERE FIRED AT NEW YORK FROM A LAUNCHING SITE AT THE NORTH POLE, IT WOULD LAND IN AN ILLINOIS CORN FIELD.



THE CORIOLIS EFFECT IS NEGLIGIBLE NEAR THE EQUATOR, BUT IT INCREASES AS LATITUDE INCREASES. ALSO, THE CORIOLIS EFFECT INCREASES IF THE SPEED OF THE OBJECT MOVING ACROSS THE SURFACE OF THE EARTH INCREASES.

WERE IT NOT FOR THE CORIOLIS EFFECT, SURFACE WINDS WOULD MOVE DIRECTLY FROM AREAS OF HIGH PRESSURE TO LOW PRESSURE INSTEAD OF AT AN ANGLE AS THEY ACTUALLY DO. IF THIS DID OCCUR, NO MAJOR PRESSURE SYSTEMS COULD DEVELOP.



FOR EXAMPLE, AT THE EQUATOR, WHERE THERE IS LITTLE IF ANY CORIOLIS EFFECT, THERE IS VERY LITTLE VARIATION IN PRESSURE FROM DAY TO DAY. THE EXCEPTION, HOWEVER, IS THE TYPHOON OR HURRICANE, SPAWNED IN THE TROPICS, BUT FROM 250 TO 500 MILES NORTH (OR SOUTH) OF THE EQUATOR.

IT IS INTERESTING TO NOTE THAT THE MAJOR HIGH PRESSURE AREAS AND REGIONS OF LOW PRESSURE ARE USUALLY FOUND AT LATITUDES CLOSER TO THE POLES THAN THE EQUATOR. NEAR THE POLES, THE CORIOLIS EFFECT IS THE MOST PRONOUNCED.



The satellite in its present orbit permits extended testing anywhere around the earth between points up to 9,000 miles, thus eliminating the need for multiple satellites for the test.

The six Navy stations which took part in the test included USS *Iwo Jima* (LPH-2), USS *Sea Leopard* (SS-483), a P-3 *Orion* and three shore installations. *Iwo Jima* was in the Pacific and *Sea Leopard* in the Atlantic at the time of the test. Experiments with LES-5 are directed toward meeting the communication needs of lower echelon land, air and sea forces using small lightweight equipment in tactical networks.



LCDR. IVAN NANCE, Jr., USN, an exchange pilot, receives his Royal Navy Wings from Captain A. B. B. Clark, RN, commanding officer of HMS Goldcrest. LCDR. Nance is Senior Pilot of 849 "B" Flight of HMS Hermes.

Competitive Exams Slated Applications Deadline is Nov. 17

Vice Admiral B. J. Semmes, Jr., Chief of Naval Personnel, has announced that the 22nd annual national competitive examination for the regular Naval Reserve Officers Training Corps will be given December 9.

The NROTC program prepares a young man for a Navy or Marine Corps commission while he is studying at one of 52 civilian colleges. All tuition fees, uniforms and books are furnished by the Navy and the student receives \$50 per month subsistence allowance for not more than four years. During the summers between academic years, the student participates in training periods.

Eligible high school seniors and graduates should submit their applications before November 17. Forms are available from high school counselors and Navy Recruiting Stations or from the Chief of Personnel (Pers-B6411), Department of the Navy, Washington, D.C., 20370.

Space Communication Test Six Navy Stations are Participants

The first experimental tactical communications by satellite between Army, Navy and Air Force units have been accomplished.

Messages were exchanged between aircraft, a submarine, a ship, and fixed and mobile land-based terminals of the Army, Navy and Air Force. The satellite used to relay the communications was the Fifth Lincoln Experimental Satellite (LES-5) which was launched by the Air Force into an 18,000 nautical-mile-near-synchronous

orbit by a developmental *Titan III*C booster from Cape Kennedy on July 1.

LES-5 was built for the Air Force by the Lincoln Laboratory of the Massachusetts Institute of Technology. Cylindrical in shape, it is 5½ feet long, 4 feet in diameter and weighs approximately 225 pounds.

In its present orbit, the LES-5 is travelling around the earth from west to east at a drift rate of approximately 32° per day. It takes about 11 days to make a complete revolution. At any given location, the satellite is "visible" to radio communicators for approximately five days per revolution.

PERSONAL GLIMPSES

Editor's Corner

Portrait. During World War I, the *Atlantic Monthly* described a new breed of man: "The aviator of today is picked for his quickness of mind and body, and the first thing that strikes you about him is a sort of feline, wound-up-spring alertness. Then you note his reticence, the cool reserve of a man whose lot is to express himself in deeds, rather than words, and, lastly, there is a quiet seriousness, verging almost on sadness, of a man who must hold himself ready to look in the eyes of death at any moment and yet keep his mind detached for other things."

AIR MAIL. Occasionally, the look-outs on the attack carrier *USS Saratoga* report a "low-flyer" to the bridge. The object is assumed to be a low-flying aircraft until identified. Sometimes the identification comes through as B-I-R-D, usually a sea gull.

A short time ago, a low-flyer report was passed on the *Sara*. This time, however, the bird landed on the signal bridge. What was first identified by the duty signalman as a "carrier" pigeon was later discovered to be a "destroyer" pigeon from the *USS Davis*, then operating with *Sara*.

The message wished *Saratoga* good luck in keeping her "birds" flying,

an obvious reference to CVW-3, deployed with *Sara* in the Med.

Never a Dull Moment. After 13,000 pilot hours and 27 years, Captain Cook Cleland has retired from the naval service.

As a dive-bomber pilot in WW II, he flew from the *USS Wasp*—sunk at Guadalcanal—and the *USS Lexington*, to become a Navy ace. A test pilot in 1944, he flew captured Japanese and German aircraft in addition to the P-59, Navy's first experimental jet.

After the war, Captain Cleland piloted a *Corsair* in the National Air Races, winning the Thompson Trophy twice. He operated his own airport, flying school, non-scheduled airlines into Canada and Alaska, and an aerial skywriting company. He developed the first successful laminated plastic seaplane float. He became the Young Man of the Year of Ohio in 1949 and of Cleveland in 1951.

When his reserve fighter squadron was called to active duty, Cleland saw action in the Korean conflict. Shot down over North Korea, he was rescued by helicopter and subsequently took helicopter training.

At retirement, Captain Cleland was

with the Alaskan Sea Frontier Command and ran the Kodiak Flying Club.

Now settling down in Florida, Captain Cleland will operate a guide service for sportsmen interested in hunting the giant manta ray, providing the boat and airplane for stalking the beast.

INITIALS REDEFINED. Worldwide submarine contacts have more than doubled in the Navy's antisubmarine warfare program. Aboard *Wasp*, ASW means, "And Sleep—When?"

Pace-Setter? Two years ago, AT1 Henry T. Smith built the "Black Knight" at NATTC MEMPHIS. At first, it was just a desk ornament, a blinking, electronic curiosity. But now it's found a place at AVI(B) school.

Smith's brain child is considered part of the school's training aid force. It helps demonstrate neon flip-flop oscillators and variances of RC (resistance capacitance) time. When plugged into any 120-volt outlet, its neon bulbs oscillate to give a blinking effect.

The circuitry of the Black Knight can be adjusted to vary the frequency of the blinking and thereby set the pace for the school's work day.

Made of spare components found around the lab—neon bulbs, resistors, the insulator from an alligator clip, a transistor—the Black Knight is one of many gadgets the instructors at Memphis use to get the point across.

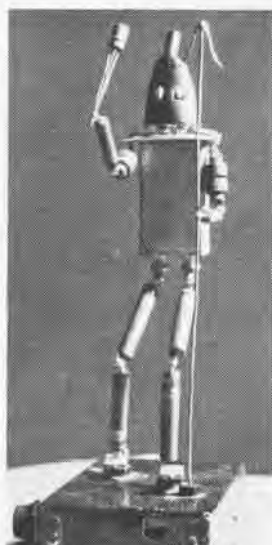
Says Smith, "The Black Knight works because it's the fun way to do it."



SPECIAL DELIVERY



CAPTAIN COOK CLELAND WITH GIFT FROM HIS KODIAK FLIGHT STUDENTS



TRAINING AIDE

LETTERS

Patrol Squadron Four!

SIRS: With all due respect to a fine sister squadron, it should be noted that the P-3 Orion flying in formation with other SEATO aircraft as shown on page 28 of the July NANews is not from VP-16. A close look at the tail shows a YD, the designator for the best ASW squadron in the Navy—VP-4 !!!

C. M. WALKER, COMMANDER
Commanding Officer

Patrol Squadron Four
FPO San Francisco, 96601

Data on SB2U Requested

SIRS: I am researching the Chance Vought SB2U series naval dive bombers for an article in the *American Aviation Historical Society Journal*.

From the aircraft record cards, I have the official life history of all SB2U's by bureau number, but I am trying to discover the individual unit markings per bureau number for every change of station or unit; e.g. SB2U-2 #1383 was 4-B-14 in VB-4 in 1940, but in May 1943, #1383 was assigned to Carrier Qualifying Training Unit, Norfolk, and carried a different unit marking.

I would also like to correspond with naval aviators, gunners and technical personnel who flew or were involved in the SB2U developmental program. Particularly, I am interested in SB2U pilots who flew the Neutrality Patrol in VS-41, VS-71, and VS-72, carrier qualified aboard the training carriers *Cbarger*, *Curd*, and *Wolverine*, received VS operational training in SB2U's at NAS JAX in 1942-43 and flew in VMSB squadrons.

Photos, personal impressions and experiences would be appreciated. All material will be copied and promptly returned; each contributor will receive full credit for his information.

If any SB2U pilot would like to know the disposition of the aircraft that he flew, send disposition of the aircraft that he flew, send a duplicate record card tracing the service life of the aircraft from acceptance to final striking from BUAEV's records.

JOSEPH H. WEATHERS, JR.

1901 A Mienbeau Ave.
New Orleans, La., 70122

Schedule Tailhook Reunion 1,000 Naval Aviators are Expected

The 11th annual Tailhook Reunion will take place this year in Las Vegas, Nev., October 13-15, at the Flamingo Hotel. Check-in time is 1400 Friday; check-out time is 1200 Sunday.

Applications for reservations will be accepted until October 9, with checks made payable to: Tailhook Treasurer, NAS MIRAMAR, Calif., 92145. Cost of the entire package (room, fun and entertainment) is \$39.

Admiral Thomas H. Moorer, CNO, has accepted the invitation to be the principal speaker for the Saturday night stag banquet. The *Blue Angels* are scheduled to put on their flight demonstration at McCarran Field, Las Vegas, on Saturday morning.

A turnout of nearly 1,000 Tailhookers is expected. Any aviator who has piloted an airplane aboard an aircraft carrier and made an arrested landing is invited.

NAVAL AVIATION FILMS

Among the latest motion picture films released by the Film Distribution Division, U.S. Naval Photographic Center, the following should prove of particular interest to personnel in Naval Aviation:

MN-9929C (unclassified): *Aviation Physiology—Curtain Call*. Physiological problems related to emergency exit from aircraft and procedures for overcoming them (21 minutes).

MN-10130B (unclassified): *Aircraft Maintenance Program—Standard Maintenance and Material Management Program*. How modern management techniques, applied to naval aircraft maintenance, enable maintenance managers to do their jobs more effectively within the limits of existing money and manpower (21 minutes).

MN-10130C (unclassified): *Aircraft Maintenance Program—Planned Maintenance Systems; Maintenance Requirement Cards*. Why maintenance requirement cards are an integral part of the naval aircraft maintenance program in scheduling tools, parts, special equipment, time and manpower for the inspection of naval aircraft (27 minutes).

MN-10134E (unclassified): *T-28 Standard Operating Procedures—Ground Operations*. Procedures for entering the cockpit, starting, pre-takeoff taxiing and shutting down after flight (20 minutes).

MN-10277 (unclassified): *Loading Mines Aboard Aircraft*. Strategic aerial mining mission from planning through execution with emphasis on loading aboard naval aircraft (20 minutes).

MH-10329A (unclassified): *M-422 and M-274 Vehicles; Weekly Preventive Maintenance*. Weekly preventive maintenance necessary for M-422 *Mighty Mite* and M-274 *Mule* vehicles. Areas to check and the method by which the checks should be carried out (19 minutes).

MH-10331 (unclassified): *Landing at Red Beach One*. Marine Corps training in general. A beach landing and close-air support mission with the emphasis on training (15 minutes).

MN-10420 (confidential): *Aircraft Weapon Separation and Associated Problems (U)* (18 minutes).

Instructions for obtaining prints of newly released films are contained in OpNav Instruction 1151.1D.

Employees Receive Awards 196 Benny Suggs at North Island

At NAS NORTH ISLAND, 196 Beneficial Suggestion awards were presented to 158 employees of the Naval Air Rework Facility. The awards, totalling \$7,632, represent savings of approximately \$270,000.

The largest award, \$795, went to T. L. LaRose, an aircraft instrument mechanic, who designed a test panel and devised the test procedure to simplify overhaul of synchronizers and mechanical integrators.

Others singled out for their suggestions were: C. L. Holder, foreman electronic mechanic, who received a check for \$495 for designing a test fixture for measuring over-all wear of the bell crank hole on J-79 engines without disassembling the unit; and K. L. Sauter, assistant production controlman, who received \$340 for devising an improved method for loading engine turbine blades and turbine vanes for heat treating.

Gift of Navy Flight Surgeon Mementos Go to Aviation Museum

Dr. Harold J. Rickard, retired Navy flight surgeon, now head of the Department of Aerospace Physiology at the University of Southern California, has presented some of the mementos of his career to the Naval Aviation Museum, Pensacola.

These include two pairs of Navy flight surgeon wings, one of which he designed (subsequently modified to its present design); photos of the original low-pressure chamber of the School of Aviation Medicine; and the July 20, 1941, edition of the *Pensacola News-Journal* featuring the "Flightless 'Flying Machine' being Used at Naval Air Stations to Teach High-Altitude High-Speed Aerial Warfare to Young Pilots."

Presentation of the mementos was made to Captain James H. McCurtain, USN (Ret.), officer in charge of the museum. Present were Rear Admiral H. H. Eighmy, C.O. of the Naval Aerospace Medical Center, and Captain J. W. Weaver, C.O., Naval Aerospace Medical Institute.

Dr. Rickard retired in 1960 with the rank of captain. When the use of the low-pressure chamber was initiated in 1941, Dr. Rickard, then a lieutenant, was one of the instructors.

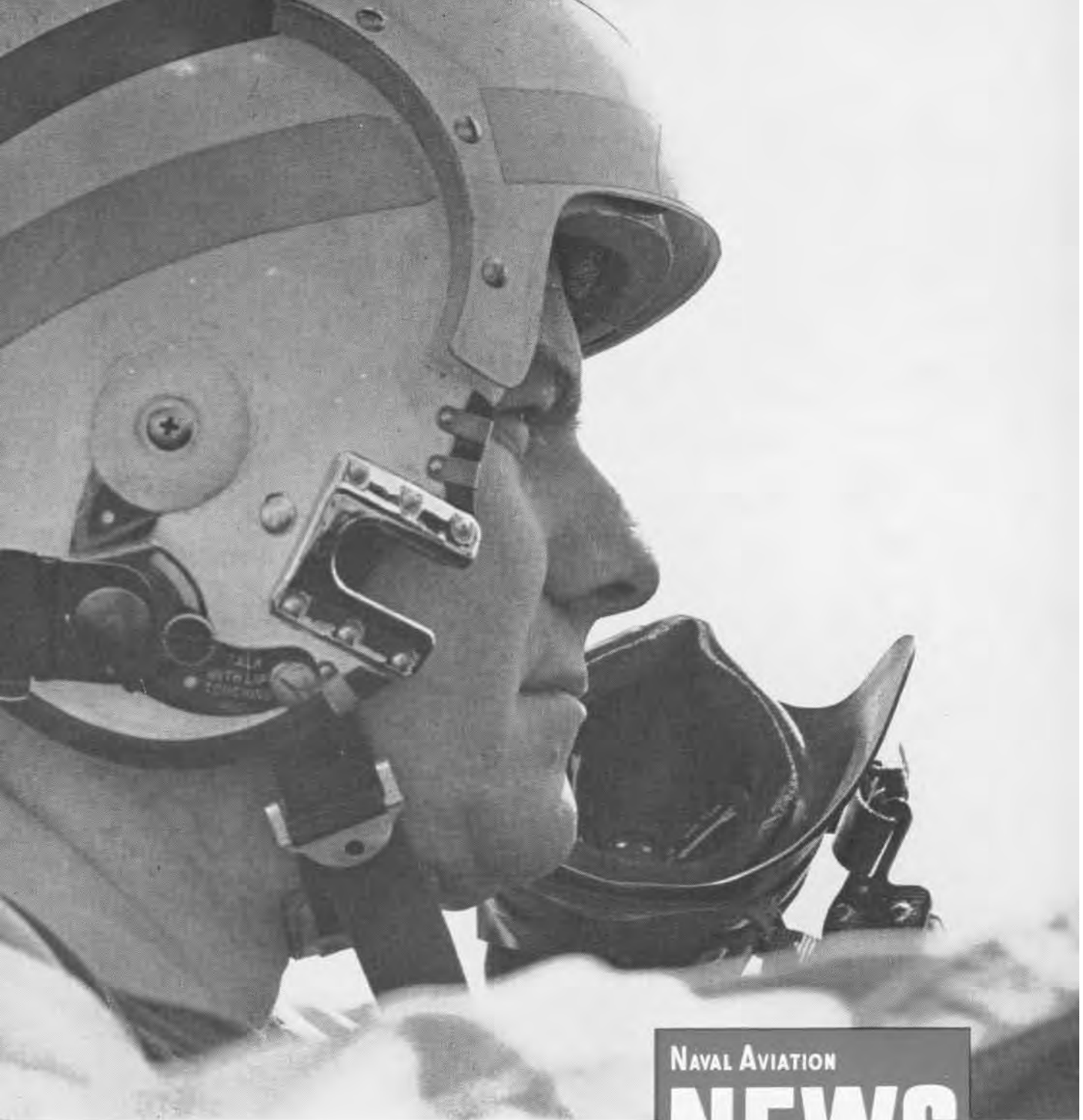


U.S. NAVAL AIR TEST FACILITY

(Ship Installations)

This month, the Naval Air Test Facility (Ship Installations) at Lakehurst, New Jersey, celebrates its Tenth Anniversary as an RDT&E activity of the Naval Air Systems Command. Its mission is to conduct tests and evaluation of shipboard and shorebased catapult and arresting systems. Captain J. C. Lieber is commanding officer of the facility.





NAVAL AVIATION

NEWS

***THE RIGHT TIME
TO LOOK INTO
THE FUTURE...***

... is right now. But there are no 'crystal balls' available to tell a young Naval Aviator where a Navy career will take him. Only his determination to use the many opportunities available to him will enable the astute man to climb the ladder of success the Navy way.