NAVAL AVIATION NEWS

49th Year of Publication

NOVEMBER 1967

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QUO VADIS?

'Whither Goest Thou' was a question asked in biblical times, but it is still pertinent today. In an uncertain world, there is a constant need for direction in every human endeavor. One place where there can be no uncertainty is the flight deck of an aircraft carrier. There, Navy men must do a tough job with precision; they must always be on top of the action. They are men in motion—and, what's more, they know where they are going.

NAVAL AVIATION NEWS

FORTY-NINTH YEAR OF PUBLICATION NOVEMBER 1967

■ IN THIS ISSUE

■ THE STAFF

■ COVERS

Phantoms on the deck were taken during early test of All-Weather Carrier Landing System (p. 6). Above, JOC Robert D. Moeser catches flight deck crewmen in a hurry aboard USS Ranger (CVA-61). The boy on back cover is a guest of USS Kitty Hawk (CVA-63).

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NAVAL AVIATION NEWS

Trophy Winners Announced

FY 67 Awards to CNAResTra Units

Rear Admiral William S. Guest, Chief of Naval Air Reserve Training, NAS GLENVIEW, has announced the FY 1967 winners of trophies presented annually to CNAResTra activities and squadrons.

The Edwin Francis Conway Memorial Trophy—for being the most efficient in training and operations—was won by NAS NEW YORK.

New York also won the Chief of Naval Air Training Trophy for the greatest improvement in annual competitive training.

Noel Davis Trophies go to: Naval Air Reserve Staff 93(L), Naval Air Reserve Division (Fleet Air) 932, Naval Air Reserve Division (Aviation Ship) 931, Weapons Training Unit 931, NARMU-935 and VS-943, all of NAS WILLOW GROVE; HS-872 and NAIRU-872, NARTU ALAMEDA; VR-662 and VP-662, NARTU WASHINGTON, D.C.; VA-831, NAS NEW YORK; and VF-672, NAS ATLANTA.

The Richard K. West Memorial Trophy for the highest percent of personnel retention went to NARTU LAKEHURST for the second year in a row.

In the field of Naval Aviation officer recruiting, NARTU JACKSONVILLE earned the Ling-Temco-Vought Trophy for outstanding performance and the Beartrap Trophy for achieving the greatest improvement, based on percentage of attainment.

The Lockheed Trophy, awarded for excellence in Naval Air Reserve enlisted recruiting, went to NARTU NORFOLK.

The Sheldon Clark Trophy for achieving the highest combat readiness status was earned by NAS SEATTLE.

NAS ATLANTA will receive the Naval Air Association Safety Trophy and VP-662, NARTU WASHINGTON, the Reserve ASW Excellence Award presented by the Commander, ASW-ForLant.

Winners of CNO Safety Awards were: VS-934, NAS WILLOW GROVE; VR-833, NAS NEW YORK; VA-876, NARTU ALAMEDA; and HS-892, NAS SEATTLE.

CNAResTra Aviation Safety citations will be presented to 192 squadrons for accident-free aircraft operations during the rated period.

First Time Win for VT-7

Awarded Silver Cup and Pennant

Rear Admiral D. H. Guinn, Chief of Naval Air Basic Training, recently presented VT-7, NAAS MERIDIAN, the CNABaTra Silver Cup and Efficiency Pennant for FY 67. Commander H. A. Riedl, the squadron's C.O., accepted the award.

Established in 1962, the award is presented each fiscal year to the training squadron which has best carried out its assigned mission in competition with the nine other squadrons in the Naval Air Basic Training Command. This is the first time VT-7 has won.

A-6A Training Squadron

VA-128 Commissioned at Whidbey

On September 1, the newest A-6A *Intruder* Training Squadron, VA-128, was commissioned at NAS WHIDBEY ISLAND.

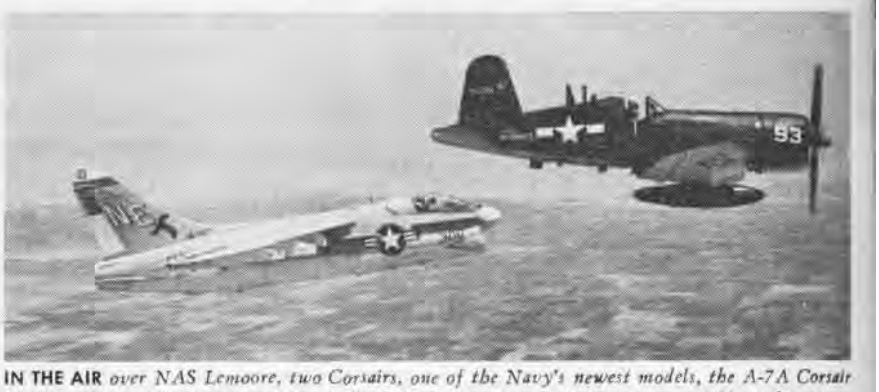
The new squadron has a complement of 15 aircraft, 44 officers and 700 enlisted men. Its mission is to train replacement flight crews and enlisted personnel for the A-6A.

Commander William B. Warwick is VA-128's first C.O. and Commander Kenneth B. Lange is the first X.O.

New F-4B Training Device

To Be Used by VF-101 at Key West

The F-4B Weapon System Trainer (WST), Device 2F55F, modified by



IN THE AIR *over NAS Lemoore, two Corsairs, one of the Navy's newest models, the A-7A Corsair II, the other a phased-out version of the F4U-7 Corsair, constituted a memorable sight. Lynn Garrison of the American Aerospace and Military Museum, Inc., had brought the ancient Corsair to Lemoore and was a guest of VA-122. The old "hose-nose" was of great interest to pilots of the station's "Corsair College," VA-122 and VA-147, as well as many visitors on hand to view it.*

the Naval Training Device Center (NTDC), Orlando, Fla., in direct support of the Vietnam effort, has been accepted for installation at NAS KEY WEST. The trainer was delivered to VF-101 which will use it for proficiency and transition training.

Device 2F55F is a complex WST simulating the operational characteristics of an F-4B *Phantom II*. It is housed in two mobile vans. One van (Tactics) contains a 400-cycle AC computer and associated circuitry necessary for the tactics simulations. A second van (Flight) contains the trainee's compartment, instructor's station and computer compartment with a DC analog computer to provide engine, flight, navigation and control system simulation.

The modification/modernization program of Device 2F55F involved major modifications and a complete refurbishing of an older device (2F55A), during which time the Tactics and Flight vans were completely recabled by NTDC.

The major modifications involved the design, fabrication and installation of systems simulating the approach power compensator, radar altimeter, flight director, built-in test for radar and missile fire computer and the GE J79-8 engine.

Readiness Through Safety

CNATra is Named FY 1967 Winner

The Chief of Naval Operations has named the Chief of Naval Air Training and the top performing units of his command as winners of the FY 1967 CNO Readiness Through Safety Award.

Admiral David L. McDonald, former Chief of Naval Operations, recently said, "For the second year in a row, the Naval Air Training Command has met the demand for more pilots and NFO's by exceeding its planned production goal. This has been done in spite of critical aircraft delivery, supply and maintenance problems, a facility base that was established for a training program far less than the actual program and severe personnel shortages. In the face of these marked limitations, it was only the allied effort of all personnel that enabled the high pilot/NFO output to be met. Testimony to the long, arduous hours and the professional ability expended on the student pilots and NFO's by the personnel [in the command] is the performance of our Navy/Marine air arm in Vietnam: There is no better way to judge the excellence of the product of the Naval Air Training Command."

CNATra bettered its performance last year by flying more hours and simultaneously reducing the command's accident rate by 10.8 percent.

3-Day PAO Workshop Held

CNATra Holds Forum at Dallas

"Background for Professionalism" was the theme of a recent three-day Public Affairs Officers' Workshop conducted by the Chief of Naval Air Training at NAS DALLAS.

The workshop provided a forum for the exchange of ideas and experiences aimed at furthering the command's public affairs program.

Subjects included such topics as "Guidelines for an Open House/Air Show," "PAO Aid to Recruiting" and "Commercial Enterprise, Station Newspapers."

A conference for enlisted journalists of the Naval Air Reserve Training Command was conducted at the same time, providing them with additional information pertaining to their rate and job. They were invited to sit in on several of the general sessions of the PAO workshop to enhance their scope of professionalism.

Commander Herbert G. Karsten, CNATra PAO, acted as coordinator and chairman for the two conferences which were attended by 71 PAO's and journalists who represented over 100 naval training activities.

THE NAVY CROSS *is bestowed on Ltjg. Francis S. Prendergast at VT-1, NAAS Saufley Field, by Commander A. E. Geist, C.O., for extraordinary heroism as a Naval Flight Officer with RVAH-13 in the waters off North Vietnam in March 1967. Lt. Prendergast is now in training to become a Naval Aviator.*

'CHUTIST DEMONSTRATES NEW PARACHUTE

Modified Canopy Adopted

Will be Utilized by SEAL Teams

A new parachute canopy, developed by the Naval Aerospace Recovery Facility, will become standard equipment for the Navy's SEAL Teams.

The removal of partial panels in the canopy, according to a carefully designed pattern, results in a quicker turn rate, increased forward speed and greater maneuverability. A modification of parachutes now in use, the new personnel parachute requires no changes to associated containers and components.

Army Special Forces and the Air Force Aerospace Rescue and Recovery Service are considering adoption of the modified canopy.

2,050 Miles in 4½ Hours

Record Non-Stop Flight Claimed

When the *Blue Angels* left NAS WHIDBEY ISLAND recently, they teamed up with Heavy Attack Squadron (VAH) Four to make the non-stop, 2,050-mile trip to NAS PENSACOLA in 4½ hours. VAH-4 provided five KA-3B tankers for aerial refueling of the *Blues'* six F-11's and one F-9 over Idaho and Colorado.

This makes the fifth time this year that the *Blue Angels* have used the services of VAH-4. To show their appreciation, LCdr. Bill Wheat, OinC of the *Blues*, presented a plaque inscribed "With sincere appreciation for your most generous hospitality" to Commander M. W. (Red) Rumble, C.O. of the heavy attack squadron.

GRAMPAW PETTIBONE

Too Little, Too Late

The *T-bird* was scheduled for a calendar maintenance test flight with an experienced pilot in the seat. Preflight inspection, taxi and takeoff were accomplished in a routine manner. The flight proceeded normally and the driver returned to home plate.

After receiving landing clearance, the T-33 entered the traffic pattern, flew a standard approach and broke for the duty runway. The gear was checked down and locked at the 180. This was verified by a silent warning horn, absence of a gear light and all "down" in the position indicator. (The fuel counter read approximately 435 gallons remaining at this time.)

Airspeed at the runway threshold was 105-108 knots and once the barn-bound boy was satisfied he had the runway made, he cut the throttle.

The bottom dropped out. The *T-bird* hit hard on all three wheels, smack in the vicinity of the runway numbers. It bounced and came down hard on the *port* main mount. Immediately after *this* touchdown, the pilot noted the landing gear warning horn, a red light (unsafe gear) as well as a barber pole in the indicator's left main gear window.

As the machine decelerated during roll-out, a left swerve developed and carried it toward the arresting gear chain and some sign posts at the left edge of the runway, just beyond the intersection of the runway and taxiway. The pilot was unable to keep the aircraft straightened out with brakes and he intentionally released the right brake and tapped the *left* to miss the obstructions. As it traversed the infield, the *T-bird* settled down on the port tip tank and spun 270 degrees to the left, coming to rest on the taxiway. The pilot shut down, secured all switches and disembarked with his passenger.

Grampaw Pettibone says:

Holy mackerel, how complacent can a guy get? Anyone who relies on luck and superstition, hopin' that experience will make him immune to unpleasantness, instead of stickin' with NATOPS and good common sense, is headin' for the wrong end of the awards table. Even the Nuggets know you have to add knots for that extra fuel weight on landing. What do you suppose made this fella think *he* could get away with it?

Play It by Ear

The missile intercept flight was to be conducted at 30,000 feet and under GCI (ground-controlled intercept) at all times. The two *Crusader* pilots agreed on a 3,500-pound fuel bingo and an alternate military airfield. Since the section leader had experienced a previous generator failure, he briefed this as the "emergency for the day."

In the event of a generator failure, the plane experiencing the failure would fly wing on the other for an instrument approach to the home field. After the pilots obtained approach clearance and had begun descent, the RAT (ram air turbine) signal would be given. They would dirty up above the cloud layer and continue down in section.

Completing the 20-minute brief, they signed out for their respective aircraft, accomplished the preflights, starts and performed a section takeoff. The twosome entered the overcast at 800 feet and broke out on top at 2,800 feet. After reaching 31,000 feet, the section split and completed several intercepts, alternating as bogie and interceptor. As they approached bingo fuel, the section leader informed GCI they had to depart for home plate and advised his wingman to join up.

ILLUSTRATED BY Osborn

As they commenced the rendezvous, the wingman in the six o'clock position noted the gear indicators barberpoled and resigned himself to an impending generator failure. The wingman, now without a radio, visually signalled the generator failure to the leader and the flight commenced their homeward en route descent.

At 23,000 feet and 20 miles from home plate TACAN, the leader requested a shift to approach control frequency. He checked visually for his wingman and discovered he wasn't there. The wingman, tired of pushing the stick over without trim, had popped the RAT and so had dropped back from the lead. The RAT gave him back the UHF receiver, but no transmitter or RMI. He switched to approach frequency in time to receive the manual frequency assigned, closed up on his leader and assumed a wing position for the descent.

The flight leader informed approach control of the nature of their predicament but, when interrogated, declined to declare an emergency.

Well along in the descent, approach control again asked the leader if he wanted to declare an emergency. After considering the fuel state and nature of the situation, the leader replied in the affirmative.

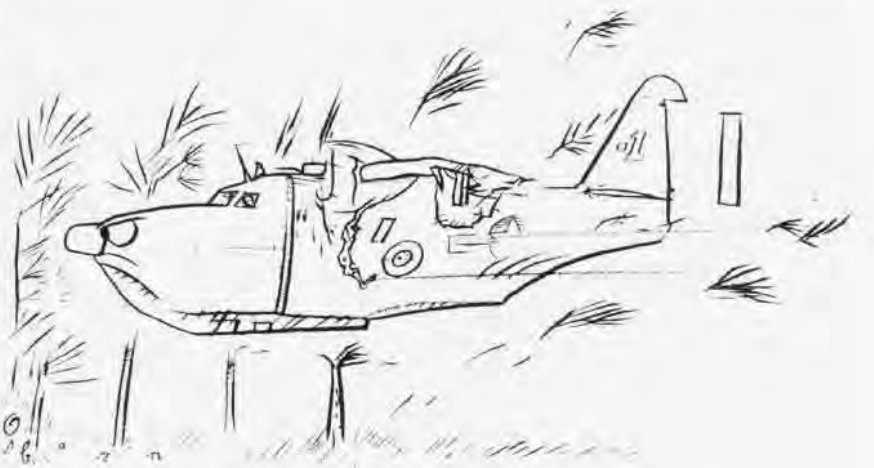
The section approached the top of the clouds at 2,800 feet and the leader gave the speed-brake signal after which they slowed to 220 knots. The leader then gave the gear signal. The wingman placed his gear down and brought the wing up. However, he was slow in the transition and eased out ahead by at least two plane lengths. Looking over his left shoulder to keep the leader in sight, the wingman became IFR in the clouds. He looked at his instruments; the gyro horizon had tumbled 60 degrees right wing down and his airspeed was down to 140 knots.

His first reaction was to bring the right wing up; he pushed the stick to the left and booted left rudder. There was no reaction in the gyro. At this point, he noted the gyro OFF light was glowing and his airspeed was down to 120 knots. Once more he tried to bring the right wing up while the altimeter read 2,200 feet and the VGI (vertical glide indicator) showed a 500 fpm descent.

The frustrated jockey moved the stick in all directions without getting a response. At 1,000 feet, he remembered the mountains below and, without further deliberation, pulled the face curtain. The Martin Baker performed beautifully. The abandoned *Crusader*, as expected, exploded upon impact.

Grampaw Pettibone says:

Great horned toadies! This is a perfect example of how *not* to handle an emergency. These fellas had all kinds of VFR weather above that 2,800-foot undercast to get set up properly for a well organized, safe descent. I'm durn sure approach control would'a blessed any request for a level-off to join up and get configured properly for a precision approach to the field. Secondly, no one would have questioned a decision to proceed to their VFR alternate under these terrifyin' circumstances.



Gosh durn it! This makes ole Gramps wonder if all this writin' over the years is really gettin' through.

Tree Trek

The HU-16 *Albatross* departed the naval station at 0700 on a passenger trip to a distant civilian airport. The instrument departure and en route portion of the flight were uneventful. As the HU-16 approached its destination, the weather was reported as 1,200 overcast with four to six miles visibility and wind velocity zero. The pilot decided to make an ILS approach to the field and initiated his request. He was subsequently cleared for the approach and descent.

Descending from 6,000 feet, the *Albatross* passed the outer marker. The pilot completed the landing check list and entered the clouds at 1,900 feet. The approach was going fine, on glide slope and on course, passing through 800 feet when the course indicator deflected to the *starboard*. The driver corrected properly and shortly thereafter swiped a clump of trees, damaging the flaps, wheels and starboard engine.

The pilot and the copilot (who had seen the trees just prior to striking them) yanked back on the yoke, gained a little altitude, and proceeded in a *right bank* back into *IFR* conditions. Another group of trees loomed up, were unavoidable, and the HU-16 stalled into them, coming to rest in an upright position. All crewmen and passengers were well prepared and suffered only minor injuries. There was no fire and all hands exited safely.

Grampaw Pettibone says:

Great jumpin' Jehosaphat! I hate to see a grown man like Gramps cry, but this one really did your ole gray-haired friend in.

This fella had over 4,000 hours of accident-free pilot time and let complacency (I've flown this one before) get the upper hand. To make a long story short, he failed to switch his cross-pointer course-selector switch to the VOR/ILS position. Although he was receiving a good DME reading on his TACAN, he, in fact, was not aware that the TACAN and airfield were separated by five miles. *He just wasn't prepared for this flight!*

I know this is old hat for most of you gents but just can't help sayin' it again: "There is nothin' to replace that safety device between your ears."

AWCLS: Computers

AUTOMATED SYSTEM RECEIVES APPROVAL FOR SHIPBOARD USE

By JOC John D. Burlage, USN

One day soon, a pilot in an A-7 *Corsair II* is going to return to his aircraft carrier from a mission and find the ship "socked in" by foul weather and high seas.

Below his plane, large, foam-crested waves kicked up by better than 40-knot winds will cause the huge carrier to pitch and roll noticeably. Big as she is, her 70,000-ton bulk is only a speck on a vast ocean as she grinds out a trailing, white wake through the unsympathetic sea.

Rain or mist may shroud her, or it might be night with no moon and no horizon. Yet, regardless of the weather, the pilot must land his aircraft aboard.

Even with all the help he receives from equipment and men in the ship—optical landing aids, air controlmen hovering over tracking radars and the LSO on the flight deck—his task is cut out for him.

Landing a high-speed complex jet aircraft on the flight deck of a carrier is never a picnic, even under the best of circumstances. But when the weather is bad, the sea is angry and the flight deck is rising and falling as much as 20 feet, it can be a nightmare.

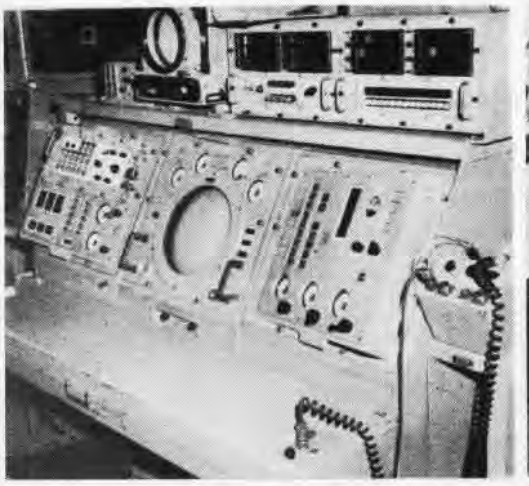
It doesn't have to be.

If personnel assigned to the Navy's Automated Control and Landing Systems Project Office (PM-6) in Washington, D.C., have anything to say about it, the Naval Aviators who take the controls of the first operational *Corsairs* aboard a deployed carrier may not have too long to wait before the All-Weather Carrier Landing System (AWCLS) eliminates many

Continued

In a painting by artist J. J. Carr, an F-4 Phantom II is guided aboard a nuclear-powered carrier by the AWCLS. Inset at left depicts the plane's attitude direction indicator.

Take on Carrier Landings



During carrier tests of the AWCLS (left), Captain F. R. Fearnow discusses system operation with military and civilian representatives; AWCLS control console shown above.

AWCLS

of the problems associated with carrier landings.

Corsair pilots, as well as the pilots of a good many other aircraft in the Navy's aviation arsenal, will find that making a near-perfect arrested landing may be as easy as flipping a switch.

That's the opinion of such individuals as Captain Frederick R. Fearnow, PM-6 project manager; John L. Loeb, Capt. Fearnow's civilian deputy; and Commander William P. Kelly, AWCLS project officer at NATC PATUXENT RIVER, Md.

The opinion is apparently well-founded. After years of experimentation, setbacks and recurring trial-and-error periods, the Navy has come up with an all-weather landing system that promises to do everything expected of it.

Although the Navy has had an Instrument Landing System (ILS) aid for some time that allows pilots of its cargo-type aircraft to bring their planes down to low approach minimums ashore, the success of attempts to obtain an effectively functioning, completely automatic system for carriers came just last May. During that month, the key component complex that forms the heart of the AWCLS received what is called "service approval" from CNO. The approval meant the complex was ready for use by operating carriers, and it came after an operational evaluation was completed aboard the USS *Forrestal* during Atlantic operations.

Named the AN/SPN-42, this shipboard complex is a sophisticated, solid-state family of equipments that includes precision tracking radar units, data stabilization equipment, tracking and navigation computers and display/control consoles.

All work together to provide data to an aircraft on its way to a carrier arrested landing that guarantees it will be on the proper approach pattern for a good arrestment—without its pilot ever touching his controls.

In the complicated procedure that must be followed before any new system is certified ready for the Fleet, the "opeval" is generally last in line—and toughest to pass.

In the case of the AN/SPN-42, pilots of VX-4 flying F-4 *Phantom II*'s made more than 200 day and night landings aboard *Forrestal* as they tested the AWCLS equipments from May 11-19.

The success of the evaluation and CNO's subsequent approval of the AN/SPN-42 mean it may be only a short time before Navy pilots are automatically landing their aircraft aboard carriers with the flip of a switch.

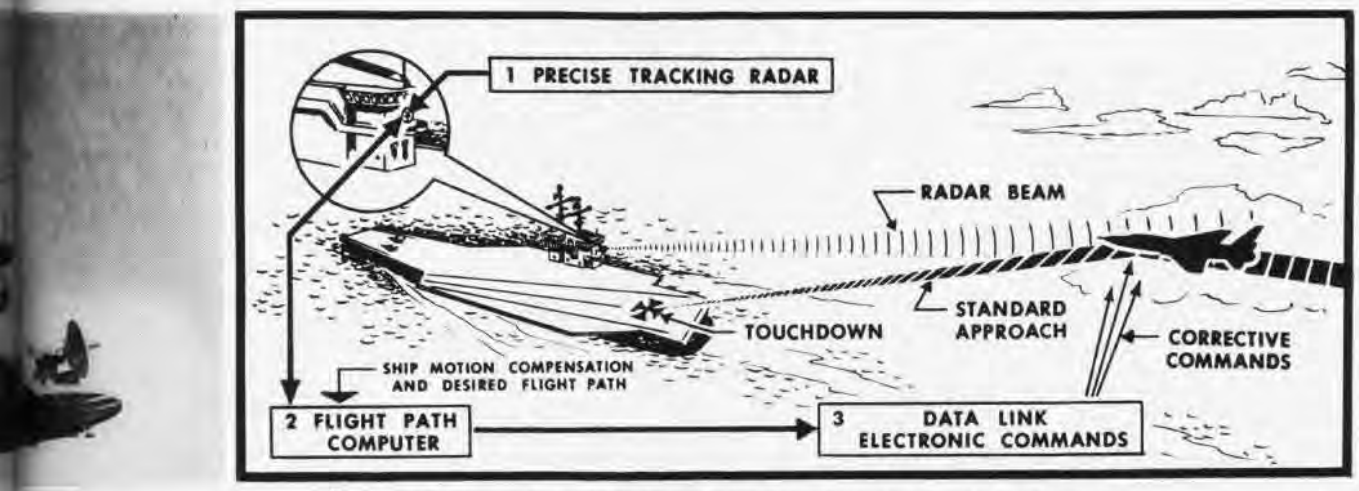
The switch that will be thrown by pilots using this system will activate the airborne instruments that are designed to "couple" their aircraft to the complex aboard the ship. Once they have made the connection, they will be able to permit the wonder of modern electronics to guide them into the waiting arresting cables for a safe touchdown. Or, if they choose (or if partial equipment failure dictates), they will be able to "fly the system" themselves, using data it provides through cockpit displays or letting an air controller aboard the carrier "talk them down" as he monitors the same information.

What they'll be doing will mark the most important contribution to carrier landings since the creation of the Fresnel Lens Optical Landing System. Although the FLOLS is the primary landing aid aboard modern carriers when their aircraft are operating under visual weather conditions, its effective range is less than a mile.

Those who have spent a goodly portion of their time working on the system that will stretch the FLOLS' one-mile, good-weather, effective range to many miles in all-weather conditions now know the AWCLS will soon be operational in the Fleet. With service approval granted, contracts are being negotiated to install SPN-42's in at least three carriers: the new USS *John F. Kennedy*, the planned nuclear-powered USS *Chester W. Nimitz* and the USS *Saratoga*.

For that matter, an early design of the SPN-42 has already been installed in many carriers. It has seen extensive use as an aid to aircraft landings and is scheduled for updating with the installation of "field change kits" also due for purchase.

While the first aircraft to deploy operationally aboard a carrier with fully automatic carrier landing capabilities will be the A-7, the airborne components that are a part of the AWCLS will also be installed in the *Phantom II* as well as other Navy planes: the A-6 *Intruder*, the RA-5C *Vigilante*, the C-2A *Greyhound* and the



Precision tracking radar (left) "locks on" incoming aircraft to provide data for automatic landings. Method of operating system is detailed in the chart shown at right.

E-2A *Hawkeye* with its radome disc.

The properly functioning AWCLS gear for both aircraft and carriers has been a long time coming.

The idea for an automated carrier-controlled approach system was first proposed to the Navy 20 years ago when engineers at the Cornell (University) Aeronautical Laboratory (CAL) contended that WW II technological advances could make automated landings on attack carrier flight decks a reality. At the time, tests were being conducted by the Navy on a Carrier Control Approach (CCA) system, a non-automatic operation designed to funnel returning aircraft onto a final glide path 500 yards aft of the carrier. At that point, the pilot would take over for a VFR landing.

CAL engineers told the Navy its system could provide the basis for automatic carrier landings; they recommended that a completely automated version be built.

It was in 1951 that the Navy made its first official move to create a working automatic carrier landing system. Over CNO's signature, a requirement was issued to develop the equipment necessary to enable aircraft to make "hands-off" landings.

After two feasibility models of the basic shipboard component complex were built, Bell Aerosystems Co. won the bid to build a third model, designated AN/SPN-10(XN-3), for installation aboard a carrier. And, in August 1957, LCdr. Donald P. Walker, now a captain, made the first automatic landing aboard a carrier when the XN-3 controlled his F3D *Skyknight* to touchdown aboard the USS *Antietam*.

The word soon got around that the Navy was on the verge of installing a truly automatic landing system aboard its carriers. Later events were to prove these expectations premature.

Before more sea trials were held, Navy pilots conducted compatibility tests ashore with the XN-3 controlling the landings of F-4 *Phantoms*. Then, in 1963, an F-4 and an F-8D *Crusader* were landed aboard the USS *Midway* during sea trials of the system—and the Navy's troubles with its AWCLS became evident.

"A number of problems were discovered during the *Midway* trials," Capt. Fearnow says. "Perhaps the biggest was a matter of repeatability. Those working with the system could not keep it performing long enough to even get into it and see what was wrong with its actual operation."

A study of the problems resulted in the Chief of Naval Material establishing PM-6 in June 1964. Capt. Fearnow has headed the project office since its inception and was recently reappointed for a second tour as project manager. When he inherited the AWCLS problems, he found he had a system that was supposed to land aircraft aboard carriers two ways:

The first method, later designated "Mode I," was to have the AWCLS in complete control of the aircraft from acquisition to arrestment; the second, to be dubbed "Mode III," was to allow a shipboard controller to "talk down" the pilot by providing him information verbally as the aviator attempted to land his airplane on the carrier.

But the *Midway* tests had proved that the system could not even be kept operational long enough to permit evaluation of its potential in either of the two modes, so, in 1964, Capt. Fearnow began to gather the personnel he would need to correct the failures. One of those who soon came to PM-6 was Loeb. As the captain's second in command, Loeb brought with him a wealth of knowledge about travelling by air the Navy way.

Known as the "father" of TACAN, he received the Navy's Distinguished Service Award in 1951 for his work on that system, which has since been applied to aviation world-wide.

With Loeb and others working with him to sift out and solve the problems plaguing the AWCLS, Capt. Fearnow set out to get the system working. "One of the first things the project office did, to resolve the shortcomings of the system we had, was to start a 'quick-fix' program for the Mode III talk-down portion," he recalls.

"Equipment was already installed in some five or six ships, so our biggest problem was to get the system working in the talk-down mode; the quick-fix program was intended to improve its reliability.

"We did improve on reliability considerably. Then we went aboard ship to establish how the system performed. I think we were fairly successful when we held tests aboard the USS *Kitty Hawk* in August 1965; we proved that the system could do the job, that it could be made repeatable, that it could give us Mode I capability."

But even while PM-6 staff members,

AWCLS

Bell and CAL engineers and other contractors sought to improve the equipment the Navy had on hand, technological advancements caught up with the "old-fashioned" vacuum-tube SPN-10. Even before its reliability could be approved, it became out-dated.

PM-6 came up with the transistorized SPN-42. The word was passed to Bell engineers to convert two SPN-10's to the new model. A year later, late in October 1966, Bell delivered its first SPN-42 to Patuxent River for testing. The second model was installed in *Forrestal* during overhaul.

There were other accomplishments from the $3.3 million contract for conversion of the computers used by SPN-10 to the newer type. They included improved reliability and reduction in size and weight, power consumption and heating of the electronic units, and elimination of certain equipment used by the SPN-10.

Along with the creation of the SPN-42, the AWCLS soon reaped the benefits of other advances in the "state of the art" as they apply to the rest of the system's "anatomy": its airborne components and a back-up subsystem designed primarily for safety.

Since the AWCLS must have equipment installed in the plane to receive and act on signals from the SPN-42, a complex, yet light, data link was needed. The Naval Air Development Center provided one: a microelectronic complex, about the size and shape of a cigar box, crammed full of enough miniaturized components to equal two stereo amplifiers, eight television sets, 20 transistor radios and ten hearing aids. It weighs nine pounds.

Installed in the aircraft, the 3,000 components that comprise the package receive the guidance provided by the shipboard equipment and convert it into signals that either the plane's human pilot or its autopilot may use to keep the aircraft "in the groove."

Dubbed AN/ASW-25A, the data link also has the capability of working with other automated systems for preflight and launch, vectoring to target or intercept point, and controlling the aircraft during bombing runs.

Besides being about 25 times lighter and taking about a seventh of the space of earlier data links, the AN/ASW-25A is calculated to have a mean time between failure of between 1,000 and 5,000 hours. If 100 of the units were sent on a four-hour mission, the producers claim, the probability is that all but one would operate without failure, and even that would have better than a 50-50 chance of working.

Of ASW-25A's part in AWCLS landings, NATC's Cdr. Kelly says:

"One of the features of the data link is the fact that we use the pilot displays already in the cockpit for other purposes. For instance, the vertical display or attitude gyro—the present system uses what's called an attitude direction indicator—provides additional displays for azimuth error and vertical error, to be used for such other purposes as bombing. We make use of these displays to present lateral error from centerline, as well as glide path error.

"Also, just about all the aircraft the Navy is buying have an automatic flight control system—autopilot. We use the basic autopilot to put the ASW-25A commands to the control surfaces for Mode I approaches."

The final portion of the AWCLS has to do with an aspect of the system that was created by PM-6 primarily to keep pilots tuned in on what the complex was doing: the "Mode II" capability, a semi-automatic method which permits the pilot to control his plane to established low approach minimums by observing cockpit indicators and displays. It's to be used if something goes haywire during Mode I approaches.

The Mode II capability now incorporated into the AWCLS was initially created to give pilots confidence in the system, but it has since found a wider potential. Loeb describes it:

"When we first started working on the system, there was no display in the cockpit to tell the pilots what was going on in Mode I landings—and the pilots didn't like that at all.

"It occurred to us fairly early that the same sources that were generating the automatic landing information—the commands to the plane—would also be generating error signals. Thus, an ILS-type presentation in the cockpit, based on SPN-42 errors, was a capability of the system.

"However, this presentation would be lost with either a SPN-42 failure or an aircraft data link receiver failure. Also, any errors in the SPN-42 computations would not be detectable on the Mode II presentation.

"So we recommended that an independent monitor system be developed that would provide an ILS presentation in the aircraft. With CNO's approval, we developed the AN/SPN-41—C-SCAN," an acronym for *Carrier System for Controlled Approach of Naval Aircraft*.

The C-SCAN system consists of two shipboard transmitters that relay coded microwave signals to the aircraft approach area aft of the carrier, and airborne equipment which receives the signals, decodes the data they provide and presents the resulting information on cockpit display indicators that can be easily monitored by the pilot.

Since C-SCAN, or SPN-41, is completely independent of the rest of the AWCLS components, the Navy found it had much more than just a back-up, monitoring subsystem designed to keep pilots happy. Although the A-7 *Corsair II* is destined to be the first aircraft with fully-operational, Mode I AWCLS capability, the portion of the system that is C-SCAN will soon be used in other ways. Loeb explains:

"Since we developed the SPN-41, the pilots who have tried it have been very enthusiastic about the cockpit displays it provides. They recommended that its use be expanded—not just as a monitor for the SPN-10/42, but as an independent ILS-type system.

"Recently, we received word that the first of the SPN-41's are to be put aboard the carriers that won't have either SPN-10 or SPN-42. The present plan is for the smaller attack carriers to receive the SPN-41 ahead of the large carriers getting SPN-42."

This development means, then, that smaller carriers will have the ILS portion of the automatic system before the whole of it becomes operational in the larger, newer carriers. Capt. Fearnow points out that SPN-41 will wind up aboard all attack carriers, but it can serve either in its primary monitoring capacity or as a completely independent system.

Once they had the working components they needed to automatically land aircraft aboard carriers with some degree of accuracy and safety, AWCLS personnel began to see the end of a long row they've had to hoe for years.

At Patuxent River, F-4G *Phantoms* routinely make Mode I landings under simulated carrier conditions. Crews from NATC and the Navy Air Navi-

These Planes Will Use AWCLS To Land...

...Aboard These Carriers

Aircraft shown clockwise from bottom: E-2A, A-6A, A-7A, RA-5C, C-2A, F-4B. Carriers, from top, are *Kennedy, Nimitz* and *Saratoga*.

gation Electronics Project (NANEP) have been working constantly to obtain uniform results from the system.

One of the best persons to provide details of what those uniform results are is Cdr. Kelly, who has flown the system more than 100 times since he reported to NATC in October 1966.

"The SPN-42 radar locks on to the aircraft to obtain the data it needs," the commander says. "More specifically, it 'looks' at a retractable corner reflector attached near the plane's nose, which provides a precisely defined target—allowing the radar to focus on this one point and not scintillate.

"From the target, the radar obtains data on elevation angle, azimuth angle and range—very accurately tracking the plane in range and to within about a foot of its elevation or azimuth position.

"This radar data is fed to the system's data stabilization unit, which also receives inputs from the ship's motion sensors—pitch, roll, yaw and vertical motion of the touchdown point obtained from gyros and accelerometers.

"The data stabilization unit uses these ship's motion parameters to provide outputs of the target's actual horizontal and vertical position, without regard to ship's motion.

"These data are in turn fed to the navigation computer, which interprets the horizontal and vertical position of the aircraft in terms of its location to the left or right of centerline and its elevation with respect to a selected glide slope.

"Coupling what it receives with known performance parameters for the type aircraft being controlled, the nav computer issues pitch and roll commands to the aircraft and line-up and vertical errors for pilot display through the data link transmitter. The same line-up and vertical error signals, plus range to target, are also fed to the control console operator in the ship's CATCC.

"Inside the aircraft, the data link receiver picks up the UHF transmissions from the ship, provides an ILS-type display of error information to the pilot and sends the pitch and roll commands to the autopilot coupler.

"The coupler in turn feeds the commands, via the autopilot, to the plane's control surfaces and the aircraft reacts accordingly—pitching up or down to maintain the proper glide path and moving laterally to maintain alignment with the landing area centerline. An advanced model of the automatic throttle, sensing angle of attack and stabilator position change, maintains proper approach airspeeds."

That's AWCLS in Mode I operation. Cdr. Kelly points out, however, that when the system is fully operational it will be only the final stage of a carrier landing operation that may be started while the incoming plane is many miles from the ship.

"Long-range search radar and TACAN will always be needed, even with the AWCLS," he says. "In the optimum system we're looking for, these aids will vector a pilot onto a final approach course. At ten to 20 miles out, he'll pick up the SPN-41 and get an ILS display that can guide him both in line-up and glide path until he can couple into the automatic system at four to eight miles out.

"If weather conditions are better than zero-zero when the pilot breaks out, he'll still have present visual landing aids to help him make certain he's on course for a good landing.

"What we're generally trying for is to put all landings in a rectangular 'box' 20 feet wide—ten feet on either side of the centerline—and about 120 feet long. It would be a landing area stretching from just forward of the number one wire to just aft of the number four wire."

The vagaries of carrier motion make this dispersal necessary. Ship's motion is a factor in the landing process primarily in the last two or three seconds before touchdown, Cdr. Kelly says, and he adds:

"The point at which the aircraft crosses the ramp is the point we're worried about most. We can't afford to have the pilot come in on a glide path for which there is no compensation for deck motion, and pass over the ramp just as the deck has pitched tail end up and heaved the touchdown point up by even a foot or two. That would cut down the ramp clearance and put the landing early and short. This system has a deck motion compensation built in so the airplane can follow the deck to some extent."

Deck motion compensation is a vital factor in the AWCLS landing process. From approximately a third of a mile out to touchdown, it causes a transition that synchronizes the aircraft's flight with the projected touchdown point aboard the carrier. Compensation signals are first fed to the plane 12½ seconds before it lands.

"At present, on manual approaches, there is no compensation for deck motion," Cdr. Kelly says. "The pilot follows a glide path that is not going up and down with the ship. Whether he touches down or gets a wave-off is purely a matter of judgment on the part of the LSO as to where the deck will be when the aircraft crosses the ramp. The LSO-pilot combination is unable to compensate for deck motion. The pilot's reactions are not quick enough, and from the aircraft he is unable to judge accurately the direction and amount of the motion.

"Although the pilot can make no attempt to follow the deck up and down manually, the automatic system can do so, and it can very rapidly put command corrections into the aircraft so the plane will actually keep in time and phase with the deck.

"Deck motion compensation is another part of the optimum system we're attempting to create."

Cdr. Kelly's references to an "optimum" landing system are part and parcel of the determination of those working with the AWCLS to see it perform properly under all conditions, and to ease the load on the pilot who must get his plane back safely.

But even though approval of the SPN-42 means that day has dawned, there are still problems to be resolved. Not the least of them is the question of pilot acceptance of the system.

Realizing that Naval Aviators may be as unwilling as anybody else to let electronic "gadgets" do work they've done for years, Capt. Fearnow admits that "we've got a selling job to do."

The need for a "selling job" stems as much from the very real shortcomings that came with the pre-SPN-42 system as from anything else. Take, for instance, a statement issued by NATC that summarized representative opinions of Center test pilots:

"Some areas of concern and further development needs have been pointed out by NATC test pilots who make daily flights in the automatic mode.

"In some cases, the concern is over present system performance in Mode I. In others, the pilots' preference for flying their own final approach—and

not trusting their aircraft to the autopilot—is evidenced.

"Typical comments on deficiencies learned from previous SPN-10 shore- and carrier-based testing express concern over unpredictable performance, rough automatic control, the fact that the pilot could make a better landing, insufficiently limited aircraft response to Mode I control inputs and the lack of a separate monitor system."

The statement also says that similar concern existed with the SPN-42, but that experience gained with SPN-10 "is being applied in the development of the new equipment to eliminate these trouble areas."

PM-6 personnel are quick to say that Navy acceptance of the SPN-42 is the best proof that the biggest bugs are out of the system. Specifically, they point to several improvements:

- The lack of a separate monitor system has already been eliminated with the creation of C-SCAN.
- If the system starts to give a pilot a really rough time in automatic control, causing his aircraft to exceed certain set boundaries, a "pitch control limiter"—which has been, or will be, installed in planes using the AWCLS—will cut in and stop extreme gyrations.
- In the same vein, a pilot can cause the system to relinquish its hold on his aircraft simply by grasping the flight controls.
- The system even comes complete with a built-in "wave-off" factor. The landing process will be terminated, and the aircraft sent around for another try, if the plane exceeds certain control boundaries.

All of these solutions to some very real technical problems are incorporated into the post-SPN-42 AWCLS, and they should go a long way toward easing the minds of pilots who will be using the system.

And even though the older SPN-10 does have limitations, pilots who may be using it in some carriers before it is updated will not be flying on an antiquated system by any means. Cdr. Kelly says this of the SPN-10:

"SPN-10 is daily providing a superior Mode III 'talk-down' capability for most of the Atlantic and Pacific Fleet carriers. Except for SPN-42, the SPN-10 in Mode III is the most accurate instrument approach aid in existence today—and that includes anything used by the Navy, the Air Force, or the FAA, aboard ship or ashore.

"So, SPN-10 is not completely an old-fashioned piece of gear. It does have its limitations for Mode I, but SPN-10's will be converted to SPN-42's more or less at a rate that matches the introduction of Mode I-capable aircraft. Also, SPN-10's limitations in Mode I do not make it completely useless for 'automatic' approaches. NATC tests have shown it to be sufficiently accurate for Mode I approaches to weather minimums of 200 feet and half a mile—and then to touchdown if visual cues show good line-up and glide path.

"We hope to be able to work on the SPN-10 Mode I capability some more; it can give better performance."

Although much has been made of the AWCLS' potential for landing aircraft safely in impossible weather conditions, Capt. Fearnow points out that PM-6 personnel are more concerned with pilots being able to "trap" more safely during normal, "routine" operations than they can now.

"I'd like to emphasize that the prime reason for the system is not zero-zero recovery capability; it is purely a matter of safety on the flight deck —meaning we want to get people back aboard who wouldn't normally make it, even in broad daylight.

"I've read too often about aircraft going into the drink when weather was not even a factor, or of planes hitting the ramp and taking the ship out of action for some time. These are the kinds of incidents we hope the system will eliminate."

The captain and his crew have figured that once the AWCLS has reached the Fleet, carrier air wings who use it can expect to land their planes with at least an 80 percent record for arrestment on the first try. And, he adds, those landings will be made with a degree of safety pilots can not attain today.

Although he emphasizes that carrier landings are dangerous under any circumstances, Capt. Fearnow does not hesitate to admit that the dangers increase as the weather deteriorates. When he was aboard the USS *America* for systems tests some time ago, he told newsmen who were aboard:

"Day carrier landings are known to involve certain hazards. These hazards increase sharply as night or foul-weather operations are encountered. Conditions of reduced visibility, absence of exterior visual references, the presence of turbulent air coupled with the roll, pitch and heave of a carrier deck as sea states vary complicate what under the best of conditions is characterized by an element of danger.

"Night and foul-weather landing accident rates among carrier aircraft are therefore considerably higher than those of normal day landings. Simple reduction of night accident rates to daytime alone would compensate us handsomely in lives and dollars.

"If, for instance, it had been possible to carry over the day carrier landing accident rate to apply to night carrier landings during three recent fiscal years, the Navy would have saved approximately $80 million. In addition to any improvement that might be realized in night and foul-weather accident rates, we could expect concomitant improvements in day rates—which would cut over-all carrier landing accident rates, saving the lives of many pilots and enhancing our over-all carrier strike capability."

By the time they are finished, those working with the AWCLS plan to see a total of some 2,000 aircraft eventually fitted with the multi-purpose ASW-25A. Coupled with the estimated $25 million allocated for research and development needed to create a workable system, installation of the data link, and the updated shipboard gear, will bring the total project cost to more than a quarter-billion dollars.

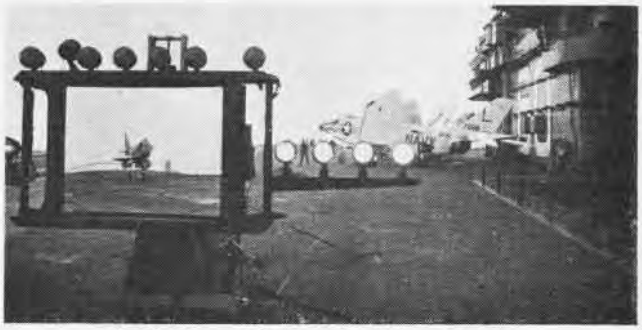
But if Capt. Fearnow's estimates of the lives and money that could be saved with the AWCLS are anywhere near correct, it's just a matter of time before the system pays for itself.

For a Pictorial Look at the History of Carrier Landings, Turn the Page

Looking at the Evolution of Landings...

Since early days, the Landing Signal Officer has played a key role . . .

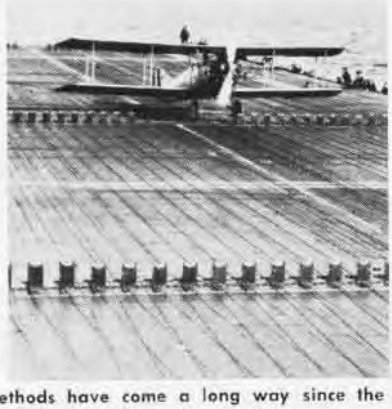
EVER SINCE LCdr. G. deC. Chevalier, flying an *Aeromarine*, made the first landing aboard the carrier USS *Langley* on October 26, 1922, the evolution of methods used to get Naval Aviators and their aircraft safely down to the deck has been a continuing proposition. On these pages, *Naval Aviation News* gives a quick look as some of those methods and also tells the story of a WW II LSO.

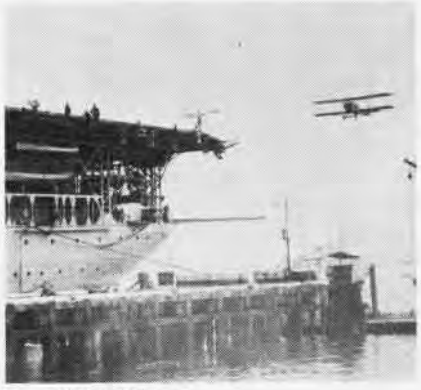


. . . but he has received mechanical assistance, such as that provided by the Mirror Landing System.

In WW II, carriers could land aircraft on the bow . . .

. . . but the more common 'approach' was the type performed by this SBD as it gets 'cut' aboard USS *Santee*.





Carrier landing methods have come a long way since the days of the biplane and the straight deck carrier. Note fore-and-aft wires in center photo.

The advent of jets meant that carrier landings would be trickier . . .

. . . and an aid created to help the Naval Aviator was the Fresnel Lens Optical Landing Aid System, shown here on *Oriskany*.

...and the Breed of Man who brought 'em in

By Captain Robin M. Lindsey, USN (Ret.)

INSTALLATION of the Navy's All-Weather Carrier Landing System aboard attack aircraft carriers represents the most recent step in a continuing search for the safest, most efficient means possible for getting pilots and their planes back aboard their ships. With its highly complex, computerized subsystems, the AWCLS draws heavily on the advancements made in the world of electronics to do the job required of it.

With such systems and landing aids as the AWCLS now available to carrier pilots, it seems difficult to believe that only a few, short years ago—well within the range of memory of senior Naval Aviators—the single key element of any carrier landing was represented almost exclusively by the Landing Signal Officer. Then, there were no fancy electronic marvels to help the LSO in his demanding assignment as he stood on his precarious flight deck perch, just the "paddles" he used to "wave 'em in"—often under conditions that were far from ideal. His knowledge, ability and intuition were often all that stood between a safe landing and a disaster.

One of those early LSO's was Robin M. Lindsey. This is his story.

I became a Landing Signal Officer more or less by accident, and I've never regretted it. After graduating from Stanford University in 1936, I had moved on to AvCad elimination training at NRAB OAKLAND and had won my wings at Pensacola in 1938. My next stop was Fighter Squadron Six and the USS *Enterprise* (CV–6).

Sometime in either late 1940 or early 1941, then-Lts. Ray ("Bud") Needham and Roscoe Drummond—who had been LSO's—proposed that each of the individual carrier aircraft squadrons designate a junior officer with Fleet experience for LSO training so some of the load could be taken off the ship's LSO. (In those days, each carrier had its own air group, but both the LSO and his assistant were members of ship's company.)

The request filtered down to each of the four squadrons attached to *Enterprise* and also to the other carrier squadrons based at NAS NORTH ISLAND in San Diego. I was designated from VF-6, so every time I had a few spare minutes I would go down to the Field Carrier Landing Practice (FCLP) platform and observe.

In late April 1941, our squadron was ordered east to the Grumman factory to pick up our new monoplane F4F-3A's. But we had no sooner returned with the planes to North Island when *Enterprise* was ordered out to Pearl Harbor. Since our pilots were not qualified to land aboard in the F4F-3A's, we were left behind to follow later.

In the following few weeks, I tried to train VF-6 pilots in FCLP as LSO. It wasn't long before we received orders to proceed to Pearl Harbor to rejoin our ship. We were to be transported aboard the USS *Saratoga*, but since the *Saratoga* LSO had never even seen an F4F-3, I was sent aboard—braced by a vote of confidence from the squadron—to act as LSO for the fly-on. The *Fighting Six* F4F-3's were all landed without incident (we had good pilots).

Somehow, word of my involvement in the fly-on got around. It was only a matter of days after we rejoined *Enterprise* in Pearl that—much to my surprise—I received orders designating me as Assistant Landing Signal Officer of the carrier under then-Ltjg. H. B. Harden.

On December 7, 1941, Bert Harden turned in as beautiful a job of paddle-waving as I have ever seen when he landed the entire *Enterprise* air group aboard at night without a single blown tire—and with all the torpedo planes carrying fish in their bellies, too. That action represented the first night landings of WW II for our Navy and it was the first time planes loaded with bombs and torpedoes were ever landed at night.

Bert was moved up to the job of air operations officer after the first Marshall Islands affair, so the head LSO job was dumped in my lap. As far as I know, that made me the first ensign and former AvCad ever to be designated senior LSO aboard a major aircraft carrier.

As a member of the *Enterprise* crew for almost five years, the last year and a half under war conditions, I was privileged to be in a small way a part of the wonderful records established by that gallant ship's crewmen. But of all the incidents that grew out of the war, certain ones stick in my mind as being especially noteworthy.

The most difficult task I ever had to perform was flagging in planes when *The Big E* escorted the USS *Hornet* and her little surprise package of B-25's on that memorable trip to Tokyo. The two days before and the day of launching the B-25's were marked by the roughest weather in which I've ever seen planes operate.

Normally, nobody would think of operating planes off carriers in such high winds and seas but the fact that we were so near Japan and operating in unsearched waters made it mandatory that air operations continue. It was so bad the day the B-25's were launched that my assistant had to hold his arms around my waist so I would not be thrown off the platform.

We were landing planes on the stern and taking water on the flight deck over the bow, a fair pitch in any man's league, and it was no small mark of the quality of our pilots that there wasn't a single accident.

The first day of the Battle of Midway was the most heartrending I ever had as an LSO. I had to stand back there on the platform and check off the pilots as they returned from their first attacks. Only half made it. They were all good friends.

The second night of the Midway battle gave me my first experience at bringing planes in at night; I will readily admit that my knees were making considerable noise—especially since ten of the planes had no running lights or approach lights, and all you could go by were the sound of their engines and their exhaust flares. But it was also the first night landing for more than half of the pilots, so they didn't have anything on me.

I remember turning around to my assistant, who was keeping track of the landings, and yelling, "For God's sake! How many more planes do we have to land?" He shook his head a little sadly and answered, "I dunno. We already have five more aboard than

we launched." I thought it might be a good idea to check those planes and see if any had large, round, red insignia on them, but they all turned out to be from *Hornet*.

During the Battle of the Eastern Solomons, on August 24, 1942, our flight deck was considerably damaged by Japanese dive bombers and we lost a couple of arresting wires. But by keeping the pilots over on the port side of the landing area we did very well. Of course, it wasn't too difficult to keep the pilots to port since they could see the large bulge and torn-up deck on the starboard side during their approaches.

Incidentally, the LSO platform is an excellent place to view what's going on—except I certainly wish the Japanese had dropped their bombs at the other end of the ship. The last plane down, coming from astern, had us boresighted. I thought he had a personal grudge against LSO's in general, because he put his egg in the water right under the platform (just missing the ramp by inches) and gave us a nice dousing besides pushing up the deck a foot or so. My fanny hurt for a week.

We had quite a time, running around putting out fires and whatnot and all the while thinking it would be back to Bremerton for us. But, no soap—we were repaired temporarily at New Caledonia and put into Pearl.

In a very short time, it seemed, we were back at it again—this time with Air Group Ten aboard. The date was October 26, 1942, the Battle of Santa Cruz.

It isn't much fun to be always on the receiving end and to watch the pilots go out and give 'em hell, but this time the LSO's got in their two-bits' worth.

After a couple of waves of dive bombers, we were starting to respot and had three or four SBD's on the stern when the word was passed that 12 torpedo planes (*Kates*) were coming in on the starboard bow. Jimmie Daniels, my assistant at the time, and I jumped into the rear seat of a couple of the SBD's and manned the twin .30 calibers. While all the guns on the ship were firing at the 12 *Kates* on the starboard bow, one lone pilot tried to sneak in from dead astern. We let him have it; you could see the tracers ripping into the belly of the plane. It burst into flames and crashed.

Our air group, coupled with that of *Hornet*, was busy hitting the enemy fleet while we were catching hell, and when the two air groups returned there was only one carrier for them to land on. *Hornet* was dead in the water.

I kept bringing in planes until they were parked right up to the number one barrier. Then I brought in some more, until they were parked back to the number nine arresting wire with no barriers. But there were still planes in the air, and they were damned low on gas.

The hangar deck crew called and said they had room for ten more planes on the hangar deck, so we continued to land planes while the number two elevator was rushing up and down to take planes below. The elevator was on the forward end of the landing area, so it was imperative that the planes catch either the first or second wire or they might end up taking a quick and totally unexpected trip down the elevator—which would be disconcerting, to say the least.

We landed about 10 or 12 more planes, putting them all on the number one wire. The rest still flying had to land in the water, but no carrier ever had so many planes aboard before.

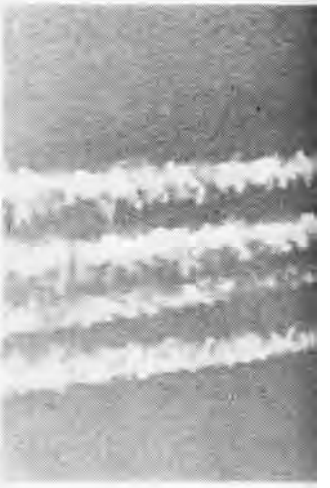
There were lots of other exciting incidents that happened, of course, but most of my work aboard *Enterprise* was routine. Air Group Ten was the best I've ever worked with. Once we went over a thousand landings without even a blown tire, and you could hardly break that record ashore.

But after bringing in more than 10,000 planes aboard *The Big E*, I finally got to see the U.S. and my wife again. After two years away, *that* was a happy day.

FOR HIS SERVICE aboard *Enterprise*, Capt. Lindsey received the Silver Star, two letters of commendation from Fleet Admiral Chester W. Nimitz and the ship's battle flag that was flown during the Battle of Santa Cruz.

After he left *The Big E*, the captain served as flight officer and LSO training officer at NAS DELAND, Fla., then became commanding officer of VBF-15 at Los Alamitos. He went on to command VBF-19 after the war, and served in a variety of squadron and shore assignments before becoming a student at George Washington University. He received his master's degree in Business Administration, reported to the Pentagon and "fought the battle of the budget" for a while.

He was operations officer aboard the USS *Yorktown* before reporting to the staff of Commander First Fleet, which sent him back to NAS North Island, attended the National War College and became aide to the Assistant Secretary of the Navy for Air and Research before he retired from the Navy. He now makes his home in Tucson, Arizona.



Entertainment at North Island's "party" included exhibits and parachute jumps (above); pilot explanations of aircraft, and music for those who got there early (below).

A visiting family finds the best place for a rest before continuing to look over North Island's varied exhibits is an NAS runway.

One of the biggest highlights of the open house celebration of NAS North Island's 50th anniversary was the precise air demonstration provided by the Navy's Blue Angels.

North Island Has Blast on Anniversary

Six hours of aerobatics under clear skies with temperatures in the high 70's, more than a mile of exhibits, a tour of an attack carrier, lunch in the middle of a runway and a lot of recollections by some—about how it was, flying in the Navy 50 years ago. That was the Golden Anniversary celebration at NAS NORTH ISLAND, Calif.

North Island officials estimated the crowd for the two-day, weekend celebration at 200,000. The ferry company that shuttles cars between San Diego and Coronado, where the NAS is located, said about 30,000 cars were transported. They couldn't remember when business was so good.

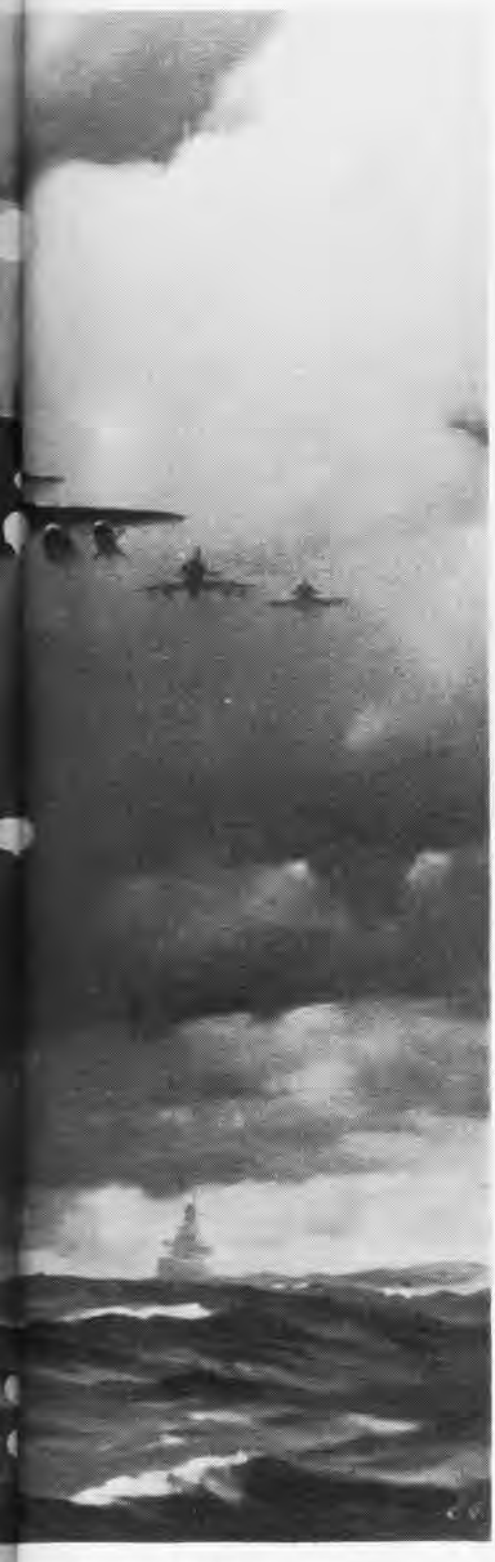
The Silver Strand freeway, which links Chula Vista and Imperial Beach (both important suburbs) to Coronado and North Island, was backed up ten miles. But nobody was complaining.

One Navy man, in describing those who attended the anniversary show, said "They came, they saw, they had a blast."

Photos by JO1 James Johnston and JO1 Russ Egnor

This youngster gets some expert help from a Wave photographer covering the "party" in picking out the incoming Blue Angels.

As a flight of A-4 Skyhawks passes overhead, an aircraft carrier steams on the high seas in this painting by artist R. G. Smith.



at Sea with the Carriers

Above and Beyond...

THE NAVAL AVIATOR who serves aboard a big aircraft carrier is a special kind of man. It takes a certain type of courage, of determination, of dedication, to strap yourself into a high-speed, complex aircraft and be catapulted off a pitching flight deck at speeds that can better 140 knots. And it takes even more of that courage, determination and dedication to pilot the aircraft on a mission against an enemy who knows you're coming and whose greatest wish is to knock you clear out of the sky.

Such a man as this is Commander Wynn Franklin Foster, USN, recently commanding Attack Squadron 163 aboard USS *Oriskany*.

Cdr. Foster was flight leader of a two-plane strike element launched against the Vinh petroleum-oil-lubricant (POL) storage area in North Vietnam. During the strike, his A-4 *Skyhawk* was rocked by AA fire that seemed to explode right in the cockpit. The commander was critically wounded; his right arm, shattered and nearly severed, lay useless on the console. Blood poured from the wound.

Cdr. Foster knew he was in serious trouble. But, despite the pain of his wound, and having to pilot his A-4 skillfully with only his left hand, he continued to lead and direct his flight in evasive maneuvering to avoid further damage or casualties.

Once clear of the AA fire, the commander realized his only chance for survival was to receive medical attention—and quickly. Through painful gymnastics in the cockpit, he selected the TACAN channel for a search and rescue (SAR) destroyer, mentally plotted the course he would have to fly and continued to pilot with his one good hand.

As he closed on the destroyer, and with ejection from his aircraft imminent, Cdr. Foster calmly instructed his wingman to tell the rescue ship what would be necessary to save his life: quick recovery after he hit the water and medical assistance, particularly blood, immediately.

Locating the destroyer after he penetrated a cloud cover, Cdr. Foster ejected at 3,000 feet, just ahead of the ship. He inflated his life jacket, released his seat pack and, after he landed in the water, opened his parachute Koch fittings—all with his left hand. A whaleboat crew picked him up about five minutes later; once in the boat, the commander directed the sailors to his survival kit and told them how to administer the morphine it contained. He was taken aboard the destroyer and later evacuated to *Oriskany*, where it was necessary to amputate his right arm just below the shoulder.

For this mission, Cdr. Foster has been awarded the Silver Star Medal.

PACIFIC FLEET

Intrepid (CVS-11)

It's been a hectic time of late for the men of the *Fighting I.*

Within hours after their ship returned to Yankee Station off Vietnam for her second combat tour as a light attack carrier, they were launching CVW-10 aircraft on strikes over North Vietnam. That they were doing the job well was exemplified by the fact that *Intrepid* received the Admiral James H. Flatley Memorial Award for aviation safety from Vice Admiral John J. Hyland, ComSeventhFlt, during a flight deck ceremony.

But even before she arrived on Yankee Station, *Intrepid* and her crew were gaining attention. She became the last American warship to transit the Suez Canal before it was closed because of the Middle East crisis.

Intrepid was operating under a new C.O. soon after she completed the cruise to the combat zone. Captain William J. McVey relieved Captain John W. Fair during another flight deck ceremony.

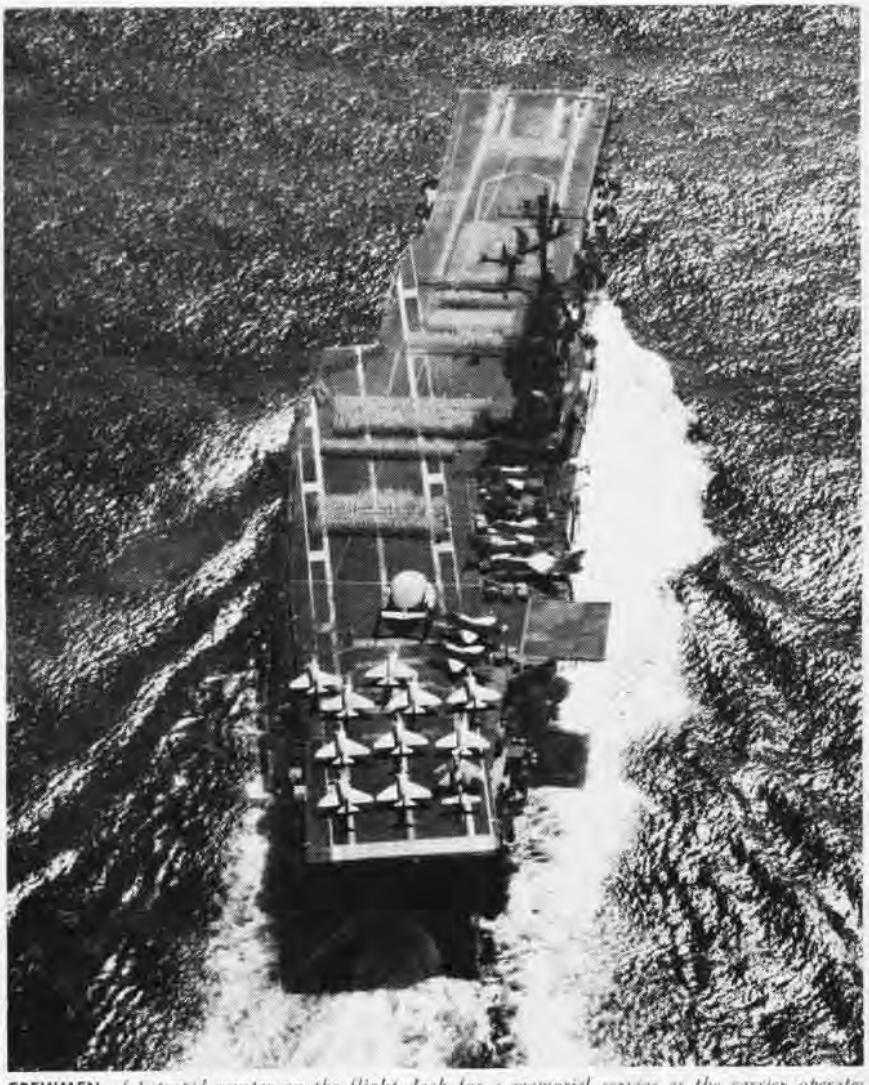
The intensity of operations was demonstrated by the count of X,000th landings for the carrier. Number 107,000 was made by Ltjg. Allen D. Perkins, VSF-3, in a Douglas *Skyhawk.* Lt. Anthony J. Nargi, VF-111, logged the 108,000th arrestment in an F-8 *Crusader,* and LCdr. Theodore R. Merry, VA-34, made number 109,000 in another *Skyhawk.*

There was also another milestone at the other end of the air operations cycle, made when LCdr. Joseph K. Hassett's VA-145 A-1 *Skyraider* was the 50,000th plane to be launched off *Intrepid's* starboard catapult.

The pilots making those marks were launched on such critical bombing missions as that against the 100-foot Cam Pha railroad and highway bridge 40 miles east of Haiphong. In the limited nature of American strikes on targets in North Vietnam, pilots of VA-34 had to cut the vital supply line—which they did—without damaging a dam located just about two football field lengths away—which they didn't.

The accuracy of the strike was further demonstrated by the fact that the bridge was only 30 feet wide.

But it has not been all work for the men of the *Fighting I.* As part of their celebration of their ship's 24th "birthday," they had Jane Anne Jayroe, Miss America of 1967, and other members of a USO group aboard for a show. They also went on liberty in Subic Bay, R.P.; Yokosuka, Japan; and Hong Kong, B.C.C.



CREWMEN *of Intrepid muster on the flight deck for a memorial service as the carrier operates off the coast of Vietnam. The CVS is on her second WestPac cruise as a light attack carrier.*

Ticonderoga (CVA-14)

After two months of repairs in the Puget Sound Naval Shipyard, Bremerton, Wash., *Tico* got underway for home port, San Diego, with an unlikely cargo aboard: 320 dependents, 347 vehicles, furniture and two cases of baby formula.

Tico, the first attack carrier to complete three combat cruises to Vietnam, steamed to Bremerton a short month after she returned from her last deployment—which lasted seven months. Her skipper, Captain Ward Miller, sought an answer to the family separation problem by initiating a request to allow dependents to make a three-day trip to Bremerton aboard *Tico.* Approval was granted, and what was called the "*Tico* Trek" began. The return trip, logically enough, was dubbed the "*Tico* Re-Trek."

"The Re-Trek," a Navy spokesman said, "will mark the second time in Naval history that women and children have been embarked more than one night on a military vessel." The first time, the ship claimed, was *Tico's* cruise to Bremerton and, although the claim may be a dangerous one, it still was a definite morale boost for crewmen and their families.

CARRIER *operations off Vietnam are exemplified in these photos. At top, SH-3A nears Hornet. At bottom left, Coral Sea's AO5 Buckner fuzes a bomb; at right, Bonnie Dick plane hits target.*

Hornet (CVS-12)

Hornet is another carrier deployed to WestPac that has turned 24. Her crew noted the event while the ship was in Sasebo, Japan. It was also during the Sasebo port period that *Hornet* men formed the audience for a show by "America's Children," a folk-singing group on a USO tour.

Coral Sea (CVA-43)

CVA-43 has returned to waters off Vietnam for her third combat tour. Soon after she arrived on Yankee Station, pilots of embarked CVW-15 were being launched on strikes against targets spread over an area of more than 150 miles—a bridge, a ferry, supply areas and waterborne supply craft. It was during *Coral Sea's* first combat cruise that her pilots participated in the initial strikes against targets in North Vietnam.

Two brothers who hadn't seen each other for nearly a year were reunited aboard *Coral Sea* when Ens. Robert Drons was brought by helicopter from the destroyer USS *Ault* to visit his brother Richard, a seaman serving in the CVA. The chance for a get-together came when *Coral Sea* was to refuel the destroyer.

Bon Homme Richard (CVA-31)

Bonnie Dick is home again. The CVA returned from an eight-month WestPac cruise, the third she has made to the combat zone, and moored at NAS NORTH ISLAND, San Diego.

The crew of the 23-year-old carrier quickly attacked the record books with a claim for a number of "firsts." They claim pilots of embarked CVW-21 have shot down more North Vietnamese *Mig's*—nine—than those of any other carrier. Among those *Mig*-killers is Commander Theodore R. Swartz, who is believed to be the first Navy pilot to shoot down a *Mig* while flying an A-4 *Skyhawk* and who used an air-to-ground missile to do the job. The kill came during an attack on the Kep airfield, during which five more *Mig's* were destroyed on the ground.

Bon Homme Richard pilots were also credited with being the first to hit the strategic thermal power plant just a mile from the heart of Hanoi. Three raids on the power plant, coupled with multiple strikes on power plants in Haiphong, Than Hoa and Bac Giang, severely crippled North Vietnam's electrical output.

During 112 days on the line, Naval Aviators flying from the carrier also destroyed or damaged 71 storage areas, two airfields, 106 railroad cars, 88 trucks, 132 bridges, 697 waterborne craft, four PT boats, 35 railroad yards, 34 SAM sites, four thermal power plants, 215 antiaircraft sites and miles of railroad tracks.

Constellation (CVA-64)

Strikes on previously unhit targets just ten miles from the border separating North Vietnam and Communist China and the downing of two *Mig*-21 jet fighters were logged by pilots of *Constellation* as the ship went into her third period on the line.

The 33-day period came virtually on the heels of 36 days of Gulf of Tonkin operations as *Connie* was called out of Subic Bay after only five days in port. The quick return to the combat zone was necessitated by the fire that struck USS *Forrestal* (NA-NEWS, October 1967, p. 6).

Eight days after their ship returned to Yankee Station, the crews of two VF-142 F-4 *Phantom II's* caught the two *Mig's* during a raid by CVW-14 pilots on the Phu Ly truck park 37 miles south of Hanoi. LCdr. Bob Davis and his radar intercept officer, LCdr. Gayle "Swede" Elie, got one of the enemy planes. The other was downed by Lt. Guy Freeborn and his RIO, Ens. Robert Elliott.

Connie pilots made the strike near the border when they struck the Lang

Son highway/railroad bridge, a 300-by-17-foot structure on the Ky Cung River and a major supply link. They also hit the nearby Na Phuoc railroad yard and, the next day, returned to Lang Son to blast another bridge. Later that day, the 1,150-foot Haiphong highway bridge was hit. Other targets included the Vinh barracks (which actually "housed" stored petroleum products) and airfield, the An Phu railroad siding, barges, trucks and PT boats.

During the An Phu raid, a VA-55 pilot, LCdr. Phil Shannon, zeroed in on a SAM site just as a missile was lifting off and blasted it.

Entertainment for the crew during the period on the line was provided by actor Robert Stack and Miss America, Jane Anne Jayroe, and her show.

Bennington (CVS-20)

A 2½-month midshipman training period and a family day cruise bracketed an underway training at-sea period as *Big Benn* ended the summer of 1967.

The middies reported aboard while the CVS was still in the Long Beach, Calif., Naval Shipyard for overhaul. They subsequently received general and specialized shipboard training, including that given *Benn* crewmen during the training cruise off San Diego.

"Drills" became "frills" when families and friends of crewmen boarded the carrier for an eight-hour family day outing off southern California. This gave relatives of service men an opportunity to see a carrier operate.

Yorktown (CVS-10)

Yorktown had a new C.O., X.O. and senior enlisted advisor when she pulled out of dry dock at the Long Beach shipyard. They are Captain William M. McCulley, Commander George E. Smith and QMCM W. E. Johnson.

Kearsarge (CVS-33)

Wearing a micro-minidress with the sides cut out, which she said she designed herself, entertainer Joy Wilkerson visited *Kearsarge* during an at-sea period. The conclusion reached by crewmen, as they eyeballed said dress and its contents, was that there was plenty of Joy aboard *Kay*.

HECTIC *life of the "air boss" aboard Oriskany is demonstrated by Cdr. Bertrand O. Larsen, with some assistance from air department personnel and PH3 "Chip" Vester, in composite photo.*

Oriskany (CVA-34)

Arrested landings numbers 124,000 and 125,000 have been recorded by *Oriskany* crewmen. The first was made by an "exchange" pilot, Air Force Maj. Bart Lynn, in an F-8 *Crusader*, and the second was logged by Ltjg. D. Barry Sehlin, VA-152, in an A-1 *Skyraider*.

When you're the "air boss" aboard a CVA like *Oriskany*, it seems as though you have to be everywhere in the "greenhouse" (Primary Flight Control) at once. That was the opinion, anyway, of air department members who teamed with PH3 Charles B. ("Chip") Vesper to produce the slightly doctored photograph of their boss, Commander Bertrand O. Larsen, that appears above.

The photo was made because of Cdr. Larsen's impending transfer to duty at the Naval Technical Training Center, NAS MEMPHIS, Tenn., and because his department won a Battle Efficiency E during Southeast Asia operations.

Tripoli (LPH-10)

The 5,000th helicopter landing aboard *Tripoli* was recorded, while the LPH was operating off Vietnam, when Marine Capts. R. L. Gatewood and F. H. Keller brought their H-46 aboard.

All 5,000 of *Tripoli's* landings have been made during the new LPH's first deployment to the waters off Vietnam. The last mark was set during refresher landings, made when a new Marine squadron came aboard *Tripoli*. Altogether, 286 landings were logged during the latest requalifications.

ATLANTIC FLEET

Randolph (CVS-15)

Another winner of the Flatley Memorial Award, *Randolph* returned to Norfolk, Va., from participation in a NATO exercise, *Lash Out*, and put into the Norfolk Naval Shipyard for a two-week repair period.

A gap of nearly 23 years was bridged when Rear Admiral Felix Baker (Ret.) brought his wife and daughter aboard *Randolph* as guests of the carrier's C.O., Captain Wynn V. Whidden. RAdm. Baker was the carrier's first C.O.; he assumed command in October 1944 and soon after took the carrier into combat.

Boxer (LPH-4)

Boxer arrived in Norfolk after completing a five-month, $5.1 million overhaul in the Boston Naval Shipyard. The LPH soon left again for six weeks of shakedown and refresher training off Guantanamo Bay, Cuba.

Forrestal (CVA-59)

Forrestal has returned to home port, Norfolk, from her first cruise to Vietnam waters, a deployment that was cut short by the fire and explosions that struck the ship.

Repair of the damages caused by the fire will be made at the Norfolk Naval Shipyard, Portsmouth, Va.

More than $52,000, all of it tax-free, was earned by 23 *Forrestal* crewmen who reenlisted while the carrier was in the combat zone and they were eligible for tax-exempt bonuses.

F. D. Roosevelt (CVA-42)

FDR pulled out of home port, Mayport, Fla., bound for her 17th deployment to the Mediterranean. Although she has spent nearly half of her commissioned service in the Med, the carrier's most recent deployment, an eight-month cruise that ended last February, was to the combat zone off Vietnam.

A helicopter was dispatched from *FDR* while the ship was operating in the Caribbean to "medevac" a stricken crewman off a Venezuelan dredge. After he was flown to the carrier, Ibanez Francisco was pronounced in satisfactory condition by ship's doctors and was transferred to a hospital in Roosevelt Roads, P.R. He had suffered a stroke.

Independence (CVA-62)

Another group of all-American entertainers, this one called the "Young Americans," presented a show for *Independence* crewmen while the ship was undergoing overhaul at the Norfolk Naval Shipyard.

Saratoga (CVA-60)

Captain John H. Dick relieved Captain Joseph M. Tully, Jr., as *Sara's* C.O. during a ceremony held while the ship was on her eighth deployment to the Med.

General David A. Burchinal, Deputy Commander-in-Chief of U.S. Forces in Europe, and Admiral John S. McCain, CinCUSNavEur, boarded *Sara* to observe simulated combat exercises.

Shangri La (CVA-38)

Shang, a winner of the 1967 Arleigh Burke Fleet Trophy given for improvement in battle efficiency and combat readiness, returned to home port, Mayport, after completing refresher training at Guantanamo Bay and operations at the Armed Forces Weapons Range at Roosevelt Roads.

Captain Robert P. Coogan relieved Captain Hope Strong, Jr., as *Shang's* commanding officer.

Ltjg. J. E. Thomas, VA-81, made *Shang's* 85,000th arrestment in an A-4.

Wasp (CVS-18)

Captain Harold G. Bradshaw, who once flew from the flight deck of the old USS *Wasp*, sunk in the Solomons in September 1942, relieved Captain Melvin R. Etheridge as C.O. of her namesake during a ceremony held aboard the carrier.

Capt. Bradshaw was serving aboard the old *Wasp* as air group maintenance and material officer when the ship was torpedoed and sunk, and had flown off the ship as an enlisted pilot before he was commissioned an ensign.

LOOKING *forward to another year of accident-free flying are these crewmen of VS-32.*

America (CVA-66)

Results of seven months of operations aboard *America* by a helicopter antisubmarine squadron detachment, held to determine the possibility of assigning SH-3A *Sea King* units to attack carriers for ASW protection, were said to be "under consideration by higher authority" by LCdr. E. J. Duplechin, OinC of HS-9's Det. 66.

LCdr. Duplechin also noted that the *Sea Kings* his detachment brought aboard *America* were evaluated for aircrew rescue missions and such utility assignments as transferring personnel, mail and supplies.

About half the detachment's flight time, which averaged about 200 hours a month while *America* was operating in the Med, was devoted to ASW. The rest of the time was spent on plane guard, utility duties, training and reconnaissance.

Lt. S. M. ("Matt") Small, VA-66, made his 400th arrested landing aboard *America* in an A-4, and became the ship's first quadruple centurion.

AMERICA'S *first quadruple centurion, Lt. Matt Small, and carrier C.O., Capt. Turner.*

Essex (CVS-9)

When their squadron was named a winner of the CNO Aviation Safety Award, VS-32 crewmen began looking around for the best way to capture the event on film. So, they got hold of three likely individuals—Lt. Gerald B. Sidner, ASC James E. Ward and ATRAN Howard R. Emerson—and posed them in the hatches of an S-2 *Tracker*, peering through binoculars and a telescope. The reason? Why, the squadron was "looking ahead" to next year and a possible repeat performance, of course. VS-32 was deployed aboard *Essex* for a four-month Northern Europe and Med cruise at the time.

An Essex crewman, ABC Bernard A. Spriggs, has been awarded the Navy Commendation Medal for heroism. He received the medal from his C.O., Captain Van V. Eason, during a ceremony aboard ship. The chief was a crew member of the carrier *Franklin D. Roosevelt* when he heroically picked up an armed ignited flare—it had fallen to the flight deck from a returning aircraft—and threw it into the sea.

Returning to the U.S. from the deployment, *Essex* and the other ships of the Carrier ASW Group One put into their respective home ports.

Besides *Essex*, the group included these DesDiv 122 ships: *Brumby, Hartley, Lester, Willis* and *Courtney*. During the cruise, the group was commanded by Rear Admiral P. W. Jackson, Jr. *Essex* is home-ported at Quonset Point, R.I.; the rest of the ships are at the Newport Naval Base.

Covering nearly 26,000 nautical miles while they were deployed, the ships visited ports in Norway, Denmark, Sweden, Finland, Scotland, England, West Germany, Holland, Spain, Italy, Malta and Sicily.

LOOKING SOUTH FROM THE LANDING FIELD AT AKRON: HANGAR DOORS ARE UNDER CONSTRUCTION. HYDROGEN PLANT AT LEFT

Naval Aviation in World War I

THE FIRST LIGHTER-THAN-AIR CLASS AT AKRON

On May 29, 1917, the Navy made a contract with the Goodyear Tire & Rubber Company of Akron, Ohio, to train 20 men in free ballooning and in the operation of kite balloons and dirigibles. Negotiations for this training began before the declaration of war. Goodyear had already started construction of a training field and, when the contract was signed, was ready to receive the students. The story of the first men to be trained there is told by one of them, Naval Aviator No. 101.

By W. L. Hamlen

LIKE hundreds of young Americans in the spring of 1917, I wanted to fly—and I wanted to fly Navy. All I had to back up the desire was less than a year of college and five years of weekend ballooning as a member of the Flight Club at Akron, sponsored by Goodyear. I was working in Chicago at the time and I haunted the local recruiting office and the Great Lakes Training Station, seeking a way in.

In mid-May I received my call. A letter from Great Lakes, stating that I was eligible for enrollment as a Seaman 2nd Class, Class 4, for training in aviation, instructed me to report for a physical. I reported and I flunked—underweight! My only recourse was to request a waiver, but no one knew how long that would take or if indeed it would be granted.

One of the circulars accompanying the letter from Great Lakes referred to "work to be done about aircraft (airplanes, seaplanes, balloons and dirigibles)." This indicated to me that Goodyear might be involved. Since Akron was my home and I was a former Goodyear employee, I got on the phone and learned that extensive plans were being formulated for Navy lighter-than-air training at Akron and that Goodyear was indeed involved. Details would have to come from the Navy Department, but Navy personnel in Chicago were helpful to the point of indicating that the program was to get underway on June 1st. They also suggested that I go to Akron to see the senior naval officer. They gave me a letter dated May 26, 1917, addressed to that officer, stating that waivers on weight had been requested and that I was otherwise qualified.

On arrival in Akron, an inquiry or two revealed the senior officer's name, Lt. Louis H. Maxfield, and his current headquarters. An early phone call on a rainy morning announcing the arrival of his first trainee, who was not even enrolled in the Navy, was, he told me later, somewhat of a surprise. Lt. Maxfield instructed me to meet him next morning at 0830 for a trip to the "station" located at Fritsche's Lake (later Wingfoot), a few miles southeast of Akron. After reminding me not to discuss my un-enrolled status

(Photographs, except for the group photo which is from the writer's collection, are from Noel Chadwick's Diary which also established some of the details that could not otherwise have been included.)

with anyone, we took off in a pickup truck assigned to the unit by Goodyear. En route, we speculated on where the rest of the trainees were and when they might arrive.

The station area was a sea of mud. However, a landing field had been cleared and leveled, a hangar measuring 400x100x100 feet was almost complete, shops had been built and equipped, a hydrogen plant was ready for use and barracks for the students and quarters for the officers were finished. A temporary mess hall had been provided in a farm house on the property and work was being rushed on larger barracks, mess halls and other facilities necessary to house the station complement of enlisted men when they arrived. All this construction on a field of roughly 720 acres was done in an incredibly short time by contractors working night and day under Goodyear supervision.

I learned that arrangements as they stood at the time were that Navy would provide the trainees and Goodyear would do the rest. This included furnishing the equipment and supplies, providing instructors for flight training and for some of the ground school subjects such as elementary physics and meteorology, and responsibility for the day-to-day operation of the field. Naval officers would teach navigation, seamanship, signalling, communications and—Drill! Later many of these subjects were transferred to special Ground Schools such as the one at MIT, but for our gang, Wingfoot Lake was it.

Returning to town, we found that three officers and one trainee had arrived. The officers were: Ltjgs. Emory W. Coil and Ralph G. Pennoyer and Ens. Frederick P. Culbert, all of whom would serve on the staff; the trainee was Colley Bell. Next day we moved to the station. Ens. Culbert drove his own car, the rest of us piled into the pickup. I don't know how the officers worked out the assignment of quarters, but Bell and I had free choice in the barracks and we picked bunks in the corner, where there was good cross-ventilation, and far away from the stairs and showers.

Before too long, we were called below—pleasantly enough, this being the first time—and asked what experience we had in drill. Our answer was negative. Every day from then until the rest of the group arrived, the two of us marched and countermarched, forward and to the rear; we advanced as skirmishers, faced right, left and about; and soon could do the grand right and left by squads with our eyes closed. We heard many a snicker and guffaw from the civilians, but our officers appeared to take it seriously, as indeed we did. Neither one of us will ever forget Ens. Culbert.

After only a few days, which seemed like weeks to Bell and me, the main body of the first class arrived. As finally constituted there were 12 members, as follows: Colley W. Bell, Arthur D. Brewer, Noel Chadwick, George Crompton, Merrill P. Delano, Richard C. Gartz, Warner L. Hamlen, Charles G. Little, Ralph M. Strader, Andrew B. Talbot, William P. Whitehouse and Arthur S. Williams. Of the 12, seven were from Harvard.

After reporting aboard, the scrambling for bunks ended up with all hands reasonably satisfied. Compared with some of the quarters in those early days, we were well off, as many of us were to learn in future assignments. Class schedules were now posted, notebooks broken out, and we were ready for the serious business of learning to fly.

We started on the ground with classes in Theory of Flight, Meteorology, Signalling and Radio, Engines, much of which was practical work, and—Drill. Flight training was in three types of lighter-than-air craft. We began with kite balloons which were tethered by a cable to a winch on the ground. Three flights were required at between one and two thousand feet, primarily to accustom us to the sensation of being in the air but also to give us some experience in reading instruments. From these, we graduated to free balloons. These ride the air and wind currents and can be controlled only to the extent of changing altitude to meet air moving in the general direction of desired travel. The balloon rises when ballast is dropped; descends when gas is valved. We made three flights as passengers in these balloons and then two solo flights of about one hour each. On the latter, the student supervised inflation, directed the start and, after landing, deflated and packed the balloon for return to base in a pickup truck.

One of my darkest moments occurred during my first free hop. Lt. Maxfield was the skipper and there were two others in the basket with us. Lift-off was uneventful. We sailed along, keeping an eye on the ground crew following us in the pickup truck. It carried two students who would exchange places with us as we made two intermediate landings. On the first landing I was to be first out and, in spite of my previous experience in ballooning, all I could think of was the "step lively" instruction given by the skipper. I was out before my replacement had a chance to get aboard and with the load suddenly lightened the balloon went up, fast, to almost 9,000 feet, before the skipper could stop the ascent. I didn't dare look up. They lost so much gas stopping that further flight had to be abandoned and I had to face the stony silence of all of them as we packed up the balloon and loaded it on the truck for return to the station.

From balloons we progressed to blimps. The first we flew were the A type, slimmer and more pointed than those of later years. Then we moved on to the B's, but there were many modifications of both. The earliest had three ballonets inside the envelope, the center for hydrogen and those fore and aft for air. The air bags were separately connected to a blower engine in the car. By blowing air into or exhausting it from these ballonets, the nose or the tail could be made heavy or light to bring the nose up or down. The volume of air also provided pressure to compensate for the expansion and contraction of the hydrogen gas during ascent and descent, thus retaining the shape of the envelope and the tension on all cables to the car. In later models the arrangement of the ballonets was modified and an air scoop set in the prop wash replaced the blower engine, but the principle of operation remained the same. The car was simply a modified Curtiss *Jenny* fuselage, complete with OX-5 engine, slung under the bag. Skids with small pneumatic bumper bags underneath were used instead of wheels. Three-place affairs, the forward seat was for the mechanic, the after seat for the aide and the center seat for the pilot. Progress of the student determined his place. The course required 18 flights in all. On the first five, the student served as mechanic with responsibility for starting the engine and watching

STUDENT QUARTERS, CLASSROOM ON FIRST DECK, INSTRUCTOR RALPH UPSON IN JENNY FUSELAGE CAR, AND ONE OF THE BLIMPS

over it generally. On the next five, he rode in the back seat from which point he operated the blower motor, if the blimp had one, and began operating the dual controls under direction of the pilot/instructor. Assuming he was ready, he then took over as pilot with the instructor in the after seat, and, after a few flights in full command, he was ready for the final qualification flights.

Our first muster was something to see. Uniforms were only things to dream about and look forward to. Nothing matched anything; black shoes—brown shoes, yachting caps—pancake caps, wrap-arounds—leather puttees—no puttees, jodhpurs—slacks; each outfit reflected individual personality. Not a few Adam's apples bobbed up and down as our officers looked us over. Lt. Maxfield took appropriate action. Within the week, a naval tailor from Washington promised an early appearance which he made, complete with tapes, chalk, measurement pads, swatches and photographs galore—to show how we would look. Visions of khakis, greens and dress blues, leather puttees, shoulder boards and caps with assorted covers were just too much for some of us. All evening the phone was kept hot as families, sweethearts, girl friends and business friends had to be told the good news. It was mid-July, however, before the uniforms arrived. Having them perked up our appearance considerably; we all stood a little taller and straighter.

On June 22nd, Lt. Maxfield issued orders involving actual flying of naval aircraft to all of the group—except me. I was still not enrolled. But on that same day, I was notified that my request for waiver had been granted and I could now be sworn in. After better than three weeks of hard active duty, I was finally in the Navy.

Training went along on schedule. With preliminary ground school well underway, we started in kite balloons on June 16, moved to free balloons the next week and then progressed to blimps about the middle of August. We accomplished some things that loom important today but at the time none of us knew enough to realize it. We did know what was going on, however—we were flying like crazy. This was particularly true after a distinguished looking, middle-aged gentleman arrived on the station, carefully carrying a glass tube or bottle some 20 inches tall. We had no idea what it was but it looked exactly like today's radio tube in a giant economy size. It was Dr. Lee DeForest who, with Lt. James Lavender, was engaged in a research project associated with ground-to-air communications. Between training flights, we took them up or helped handle the lines, day after day. Sometimes they would scarcely be clear of the ground before the "land" signal was given and down they would come again. It was exhausting work but it gave us what we know now was an opportunity to participate in a small way in an important development.

Eventually these experiments were completed and our training continued. By now we were flying on longer and more frequent flights. Night flights came into the picture and, although we had all been up at night in a balloon, a night flight in an airship was an interesting experience. Finally we began to qualify. On September 21, the first eight men successfully passed the final tests and when the recommendation of our commanding officer was approved by the Secretary of the Navy on October 5, 1917, they were

designated Naval Aviators (Dirigibles). The others qualified not too long afterwards.

By late October, shoulder boards and cap devices could be broken out and our uniforms were complete. We were now Ensigns, USNRF, and ready for any operational task to which the Navy might decide to assign us.

The detachment of our commanding officer, LCdr. L. H. Maxfield, and Ltjg. F. P. Culbert on September 27, and the assumption of command by Lt. E. W. Coil was the beginning of the change. But for us the real break-up began on October 7. On that day, seven of us destined for immediate assignment overseas were given leave to await further orders. They came on November 2. We were ordered to France with several stops en route. It turned out to be quite a tour.

On November 9th, we gathered at the Brooklyn Navy Yard—Strader, Talbot, Whitehouse, Brewer, Little, Delano and Hamlen—and sailed aboard the American liner *St. Louis*. The monotony of the voyage was tempered by the company of young ladies of the Red Cross, chaperoned by Mrs. J. Borden Harriman, en route to service in France. After landing at Liverpool, we "Reported Aboard" to the American Consul at Liverpool; to Admiral Sims and the Naval Attache at London; to the Commander, U.S. Naval Aviation Forces, France, and the Naval Attache at Paris; to the Commandant, Centre d'Aviation Maritime and the U.S. Navy Senior Officer Present at Rochefort; to the Commandant, Patrouilles Ariennes de la Loire at St. Nazaire; and to the U.S. Navy Command at Center de Dirigible, Paimboeuf.

Although there was little chance of getting lost on this one-week journey, what with the "tabs" being kept on us, there was at least one bright spot—and one dark one. The first was a pleasant reunion with LCdr. Maxfield at Rochefort which carried on to duty at Paimboeuf under his command. The shocker was our first lunch at the Officers' Mess at Rochefort where we were informed that we were to speak only French in the Mess as well as elsewhere on board, as quickly as we could get a working vocabulary in shape. The second was that the entree at our first meal was escargots—snails, by whatever other name, to me! Thank goodness there was plenty of *vin rouge* available.

Those less fortunate than we were assigned to duty at lighter-than-air patrol stations along the Atlantic Coast. Gartz went to Cape May, Bell to Rockaway, Crompton and Williams to Montauk Point, and Chadwick, who would eventually go to Key West, stayed on at Akron to help train the next class. It was considerably larger than ours and included many of the enlisted men who had handled our lines and kept us flying.

Others who took training with this class while serving on the staff or in other capacities included L. H. Maxfield, E. W. Coil, F. P. Culbert, R. G. Pennoyer and W. G. Child, all of whom qualified before leaving, and Ralph Kiely, Zachary Lansdowne and J. P. Norfleet, who completed their training at other locations.

Training continued at Akron through the war period and as more men acquired the necessary skills, the Navy gradually took over more of the responsibility for instruction and upkeep. When graduates of the Ground School at MIT began arriving, some reduction in the length of the course was possible by eliminating some of the ground subjects already covered at that school.

This was the first airship pilot-training program established by the Navy. Through the war, Akron remained the main source of LTA pilots, although some were trained at other stations. The Company and the many people of Goodyear, who undertook this program without previous experience in airship design and with very little background in their operation, deserve credit and praise for their enterprise, their contribution to the war effort and, above all, their work in making this the true launching of the Navy's lighter-than-air program.

THE FIRST CLASS. *Students standing: Gartz, Whitehouse, Delano, Williams, Talbot, Little, Brewer, Hamlen, Strader, Crompton and Chadwick. Sitting: Pennoyer, Norfleet, Culbert, Preston (of Goodyear), Maxfield (C.O.) and Coil. The mascot is Maxfield's Lanny.*

ON PATROL

with the Fleet Air Wings

VP-7's Handclasp Project

The *Black Falcons*, attached to NAF SIGONELLA since May, have a primary mission: to carry out antisubmarine operations and shipping surveillance for the Sixth Fleet. They have another mission, however: to increase the level of mutual understanding between the United States and its Sicilian hosts.

Thanks to VP-7, children from the orphanage in Paterno are all wearing new shoes and children from Misterbianco, returning home from summer camp, found new mattresses on their beds. The orphanages are located in the foothills of Mt. Etna and take care of some 220 children, boys from three to ten and girls from three to 16. The Sisters of the Dominican Order are in charge at Paterno and the Sisters of the Franciscan Order at Misterbianco.

A group of squadron personnel, led by Commander J. R. Swadener, C.O., and Commander R. F. Wenzel, X.O., visited the orphanages and made the presentations. During previous deployments to Sigonella, the squadron has donated food, clothing and school supplies, and work parties have helped refurbish the orphanages.

West Coast 'First'

A West Coast "first" took place at the San Nicholas Island, Calif., research site when LCdr. Kendall E. Schoeff assumed command of the naval facility for oceanographic research. LCdr. Schoeff became the first naval flight officer to command a naval facility on the West Coast when he relieved LCdr. Arthur L. Bentley.

LCdr. Schoeff was designated a naval flight officer in 1959. Since then, he has served as an airborne CIC officer with Airborne Early Warning Squadron One and as an air intercept control and antisubmarine air control instructor at NATTC GLYNCO. Recently he served as tactics officer for VP-22 at NAS BARBER'S POINT, where he designed a squadron training program for prospective tactical coordinators. This has served as a prototype for other squadrons.

CAP Cadets Tour Barber's Point

Some 110 Civil Air Patrol cadets from throughout Hawaii were guests recently of VP-22, VR-21 and VC-1 at NAS BARBER'S POINT. The cadets spent a day being indoctrinated in the various facets of Naval Aviation.

After being welcomed by Commander Roderick B. Moore, the station's administrative officer, the cadets saw the movie, "Ready on Arrival," which gave them an insight into combat carrier operations. A stop at VP-22 showed them the operational capabilities of the Lockheed P-3A *Orion*. They also toured the operations building, where they learned how aircraft are controlled on takeoff and landing; the ground control approach trailer and the meteorology department, where they saw weather information being collected.

At VR-21 the cadets were given a briefing on survival equipment and a simulated flight aboard a C-118 *Liftmaster*. At VC-1 they were given an insight on the F-8 *Crusader* as a fighter and photo reconnaissance aircraft. The cadets are studying subjects ranging from aerodynamics and navigation to electronics and power plants.

Trophy to VP-49's Crew One

At NAS PATUXENT RIVER, VP-49's Crew One has been named winner of the Lieutenant William Lange Antisubmarine Warfare Trophy for the 1966 competitive year.

The trophy is named for Lt. William F. Lange, USNR, who was killed in 1962 while attached to VP-49 at NS BERMUDA. In his memory, his parents and fellow squadron officers established the trophy. Each year it is presented to the VP-49 flight crew achieving the highest average grade on the basis of performance in antisubmarine warfare exercises, operational readiness inspections and month-to-month crew readiness marks.

Commander J. A. McCaig, patrol plane commander of Crew One for the period of competition, is a former VP-49 skipper. He is now a member of the staff of ComFAirWingsLant.

VP-9 Sets Record

"VP-9 has received the highest mark ever given a patrol squadron by Fleet Air Wing Eight," said Captain H. S. Ainsworth, wing commander, recently at Moffett Field. Commander R. B. Mahon, the squadron's C.O., then thanked the *Golden Eagles* for the extra effort put forth in the months preceding the Command Inspection.

VP-49's *Lieutenant William Lange Trophy for 1966 goes to the squadron's Crew One.*

AT VP-49, *Lieutenant Robert G. Hoff receives the newly-designed P-3 TACCO patch from Mr. R. M. Keiser, Lockheed's service representative.*

CREW ONE *of VP-6 (clockwise from left): ATN1 Cox, AX3 Hall, AME3 Williams, Ltjg. Stevens, AX3 Debnel, AO3 Bellemare, AD12 Zilske.*

For men who spend much of their time in the air or in a classroom, an excellent grade indicates many overtime hours in their office. As one proud VP-9 man put it, "It's like holding down two full-time jobs and going to night school, but in an outfit like this it's worth it."

Fleet Air Wing 11 Has Birthday

Recently, when Fleet Air Wing 11 celebrated its 25th birthday, the commanding officer, Captain John H. Burton, received the following message from Rear Admiral William M. McCormick:

"Anniversary greetings. On this, the anniversary of your commissioning, I wish to express my best wishes for continued success to all the officers and men assigned under ComFAirWing 11. Your continued advancement of antisubmarine warfare and patrol aviation characterizes Fleet Air Wing 11 as being 25 years young."

VP-5 Rescues Chinese Flyers

Two downed Chinese Nationalist Air Force flyers are alive today because of Crew 12 of VP-5.

Early one morning recently, Fleet Air Wing Ten at Sangley Point, R.P., received a phone call from the 13th A.F. Joint Search and Rescue Center (JSARC) at Clark AFB. A C-123 transport, piloted by a Chinese Nationalist crew, was overdue. JSARC requested the Navy's assistance in the search and rescue operations. Less than an hour later, VP-5's Crew 12 was airborne in a P-3A and proceeding at nearly 350 knots to search the area.

After ensuring that all lookout stations were manned, plane commander Lt. M. A. Jullie turned the *Orion* to the first leg of the search track. One hour and 30 minutes after starting the search—11 hours after the C-123 was believed downed—copilot Ltjg. L. H. Jordan spotted a life raft. A closer look confirmed that two survivors were in the raft. After the two men were picked up by an Air Force plane, Crew 12 continued to search the area, but found no trace of the remainder of the crew.

TACCO Patch for Flight Officers

Recently Mr. R. M. Keiser, Lockheed customer service representative at VP-49, presented a newly designed P-3 *Orion* TACCO patch to Lieutenant R. G. Hoff. Lt. Hoff is tactical coordinator of the squadron's Crew 10.

The Lockheed-designed patch has been presented to 12 qualified patrol plane tactical coordinators in VP-49. It goes to naval flight officers who complete the squadron's tactical coordinator training syllabus.

VP-6 Conducts New Training Cycle

VP-6 at NAS BARBER'S POINT has established a 12-week rotating training cycle to keep flight crewmembers current in the field of antisubmarine warfare. Each week one of the squadron's 12 crews is excused from regular duty to attend squadron lectures and training.

The week begins with a review of antisubmarine warfare and VP-6's mission. Safety and survival occupy one afternoon and one day is spent practicing sea survival at nearby Hickam AFB. After a briefing on survival equipment, the crew heads for the open water. Several hundred yards offshore, a life raft is launched and boarded, and then maneuvered back to shore by using sail or oars. Usually several rafts are required. For the last 100 yards it's a race between rafts, the oarsmen doing their best, the others assisting with hands and feet.

While in the raft, each crewmember has an opportunity to fire a day/night flare and pencil flare gun, and to use the shark-repellent and dye marker.

Lectures on antisubmarine warfare, intelligence, naval air training and operating procedures standardization (NATOPS) and recognition continue for the remainder of the week, with special emphasis placed on recognition. Finishing the week is a checkout of the .38 caliber pistol. Every 12 weeks the crews begin the cycle again, thus providing continuous training.

In July, when AX1 G. S. Cleckler was discharged by the outgoing C.O., Commander J. C. Wold, and reenlisted by the new C.O., Commander R. L. Miller, the squadron's retention program for FY 1968 began.

VP-6 is proud of its retention rate, highest for Pacific Fleet patrol squadrons. For the last six months of FY 1967, the *Blue Sharks* achieved a record of 50% first-term reenlistments and 76% career reenlistments. Over-all for FY 1967, first-term reenlistments were 30% and career were 85%, again well above the Fleet average.

SELECTED

New Naval Air Reserve Admiral

At NAS GLENVIEW recently, Rear Admiral William S. Guest, Chief of Naval Air Reserve Training, presented the cap, gold shoulder insignia and personal flag of his new rank to Rear Admiral William H. Longley, USNR. The desk-sized personal flag was presented on behalf of Admiral David L. McDonald, then CNO.

The new admiral began his career as an ensign in 1941. During WW II, he served with Bomber Squadron Four on board USS *Ranger* and with Bomber Squadron 41 and Patrol Squadron 41. At NAS GLENVIEW, he has served as C.O. of VA-726, VS-724 and Air Wing Staff 72. In private life he manages his 1,000-acre farm.

AT NAS *Glenview, Rear Admiral Guest presents personal flag to Rear Admiral Longley.*

Vietnam Airlift

Brad Petty is a high school teacher; Frank Tuma is a fire fighter; Darrell Trobridge works as a facilities planner and Jim Rogers is a mechanical engineer. But they have one thing in common. Several times each year these four NARTU ALAMEDA Reservists take leave from their jobs and volunteer for a grueling eight-day trip covering the 15,000 miles that is the Vietnam airlift.

The four recently flew in a C-118 *Liftmaster* loaded with 15,000 pounds of aircraft parts, including badly needed helicopter engines, to Da Nang. On the return trip, the aircraft brought military personnel to the U.S.

These trips are nothing new for the four Reservists. AMC Petty has made nine of these flights; PR1 Tuma has eight to his credit; ETC Rogers has made the run five times; and AMC Trobridge has logged three trips.

RASAU

A new Naval Air Reserve Unit was commissioned recently at NARTU WASHINGTON, D. C. Known as Reserve Antisubmarine Warfare Systems Analysis Mobilization Unit (RASAU) 661, it is the first of its kind.

RASAU-661 was formed to serve the growing need of the Navy for talent with ASW operational backgrounds plus training and experience in many scientific disciplines. Normally, ASW experience is found in the active forces, and system analysis capability is found among the civilian agencies and contractors. This unique combination is now brought together in a Reserve component. Pilots, submarine and surface officers team with other specialists to attack the over-all problems. The allowance reflects this composite capability with officer designators of 13xx, 11xx, 23xx, 31xx and 135xx, and enlisted data processing technicians, draftsmen and yeomen.

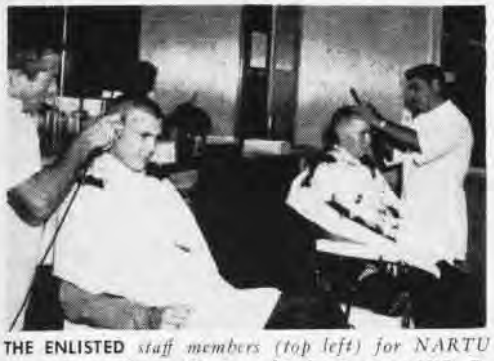
The new unit will provide on-the-job training with ASWForLant in OpCon augmentation, computer control of shipping, logistic planning factor and HUK effectiveness studies. In addition, the unit will support NARTU WASHINGTON in analysis and implementation of automatic data processing projects.

Classroom sessions will feature lectures on concepts of systems analysis, ASW behavioral considerations and state-of-the-art ASW equipments and data handling techniques. These presentations will be developed into a complete course in systems analysis for new members and special groups.

Captain Michael Lorenzo is the first commanding officer of RASAU-661.

IN JULY *at NAS Los Alamitos, nearly 1,000 model aviation enthusiasts participated in the 36th National Model Airplane Championships. At left, Dale Johnson, 8, of Berkeley, Mo., prepares to launch his model in the "carrier landing" competition. British Columbia representative Barrie Hobkirk (center) displays his model of Lindbergh's "Spirit of St. Louis." Barrie's model is complete with lights, control panels and periscope in the cockpit. The Wings of Gold (right), held by Kitty Murray, Los Al secretary, and Lt. Gene Frame, Navy representative, were flown in the competition. They were built by the New Orleans Navy team. Nearly 100,000 people attended the meet.*

AIR RESERVE



THE ENLISTED *staff members (top left) for NARTU Jax 1967 SAT program are (from left to right, front row): YN3 R. M. Ringerwald, AO3 A. B. Inglis, AMH3 J. Durante, BM1 J. P. Rhea, AE2 W. G. Jordan; (back row): AMH3 K. W. Winkle, GySgt. G. J. Daniels, Sgt. J. C. Kendall, SSgt. J. T. McKenney, ADJ1 T. H. Hamby, ATR3 W. L. Fouraker. LCdr. Largen inspects AR Raymond K. Edge during morning muster (top right). The routine for the recruits begins with "boot haircuts" (lower left) and progresses to the hospital for routine scheduled examinations. HN D. Henderson performs a hearing test on AR R. S. Granville (center). At right, recruits try small-arms firing.*

THE SUMMER ACCELERATED TRAINING PROGRAM

By JO2 Don Richie, USNR

This summer, seven dozen young naval Reservists reported aboard NARTU JACKSONVILLE's Recruit Training Battalion to take part in the Summer Accelerated Training (SAT) Program. The 84 high school students, between their junior and senior year, were typical of the young men reporting to 17 Reserve units.

The recruit training phase comprises half of the nearly three-month accelerated program. A routine day consists of four hours classroom and demonstration training, an hour and a half of physical training or military drill, unannounced inspections and study hours. The day begins at 5 A.M. and ends with taps at 9:30 P.M. As in "boot camp," the routine is rigorous, molding the recruits into creditable Navy men. Naval authorities note that the SAT program compares favorably with the recruit training at Great Lakes or San Diego.

At the completion of the 42-day training phase, the men take the airman apprentice test. All who pass begin a month and a half of training for qualification as airman, the rate with which they graduate. A majority will attend "A" schools next summer.

Airman training extends from fire fighting and fire drills to small-arms fire. Military courtesy and discipline, naval tradition, rate structure and the finer points of wearing the Navy uniform are all part of the curriculum.

Officer-in-charge of the 1967 SAT program at Jacksonville was LCdr. W.O. Largen. Lt. Robert P. Beatty was his assistant officer-in-charge. Both officers were on extended active duty for the summer.

TWO TEST PROGRAMS AT LAKEHURST

By F. A. Cittadino

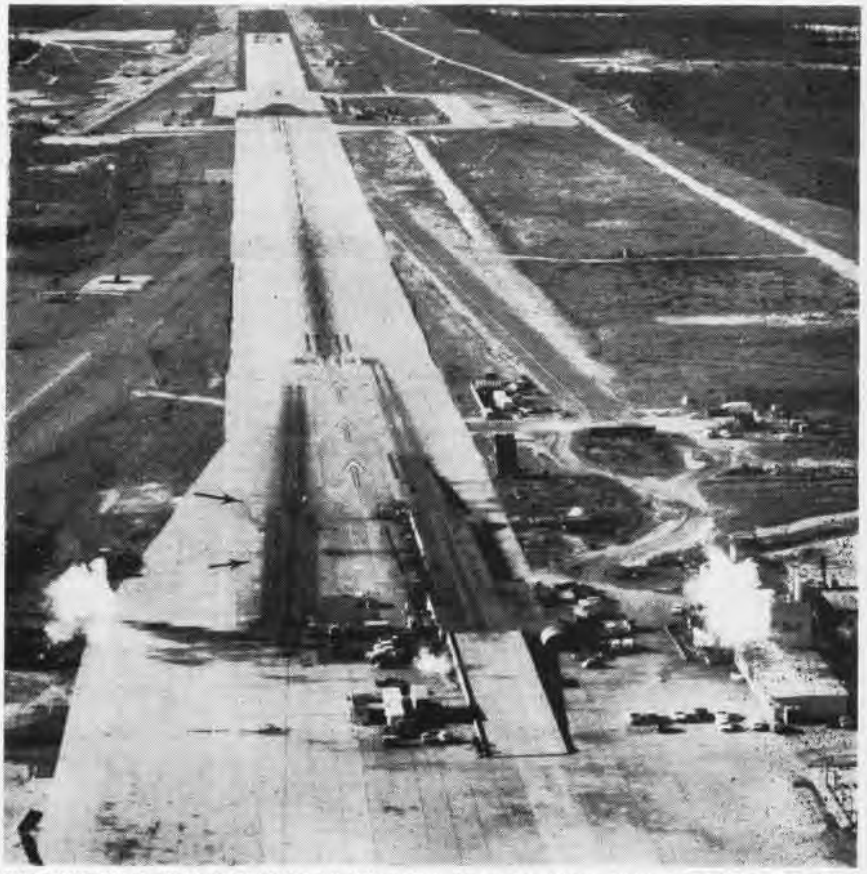
THE NAVAL Air Test Facility (Ship Installations) at Lakehurst, N. J., is engaged in test programs involving the most powerful steam catapult ever built. Catapults of this type are installed on the USS *America* (CVA-66) and the USS *John F. Kennedy* (CVA-67).

The C-13-1 catapult is similar to its predecessor, the C-13-0, but engineering modifications, which give it a power stroke of 310 feet and 70 million foot-pounds of energy, make it possible for it to launch heavier aircraft. With the C-13-1 catapult, an aircraft can be launched in approximately 100 yards as against one mile without the catapult.

When such aircraft as the F-4 *Phantom II* and the A-5 *Vigilante* were introduced into the Fleet, the need for such a catapult was created.

The braking system, a water brake, constructed to withstand 11.5 million pounds of force, acts as a buffer to stop the forward motion of the shuttle and piston assembly.

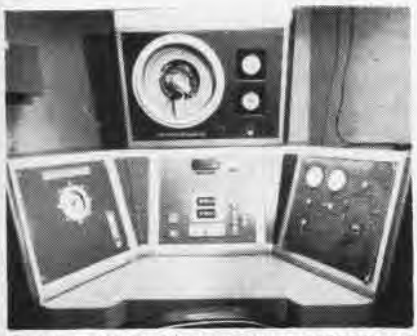
The catapult derives its force from high-pressure steam stored up to 1,000 psi in accumulators.



THE LAKEHURST TEST FACILITY'S 12,000-FOOT RUNWAY WITH NEW CATAPULT (ARROWS)

Before Fleet aircraft are tested, deadload launchers are used because of the saving in cost and the safety afforded by such launchings. The deadload vehicles can weigh from 11,000 pounds to 100,000 pounds to match the desired weight.

ONE OF THE NAVY'S A-6 INTRUDER AIRCRAFT IS BEING PREPARED FOR LAUNCH FROM FACILITY'S NEW C-13-1 STEAM-POWERED CATAPULT



C-13-1 CONSOLE WITH QUICK-GLANCE DIALS

ANOTHER project at NATF (SI) involves current tests in support of the U.S. Marine Corps' need for "instant airfields." Each Short Airfield for Tactical Support (SATS) consists of 2,200 feet of aluminum matting equipped with a shore-based catapult and arresting system. Such a system is in operation at Chu Lai, Vietnam.

Designed for use during the early phases of amphibious operations, SATS is the tactical air complement of the vertical assault doctrine. This highly mobile, economical and reusable runway can become operational within the first 72 to 96 hours of an amphibious assault.

The SATS catapult is powered by two J-79-2 turbojet engines exhausting into a free power turbine. The turbine is connected to a gear box driving a high-speed capstan. A continuous loop of steel cable is wrapped on the capstan, around a tensioning device and through a series of sheaves to the launch end of the aluminum runway. The cable continues to the terminal through another series of sheaves and returns to the capstan.

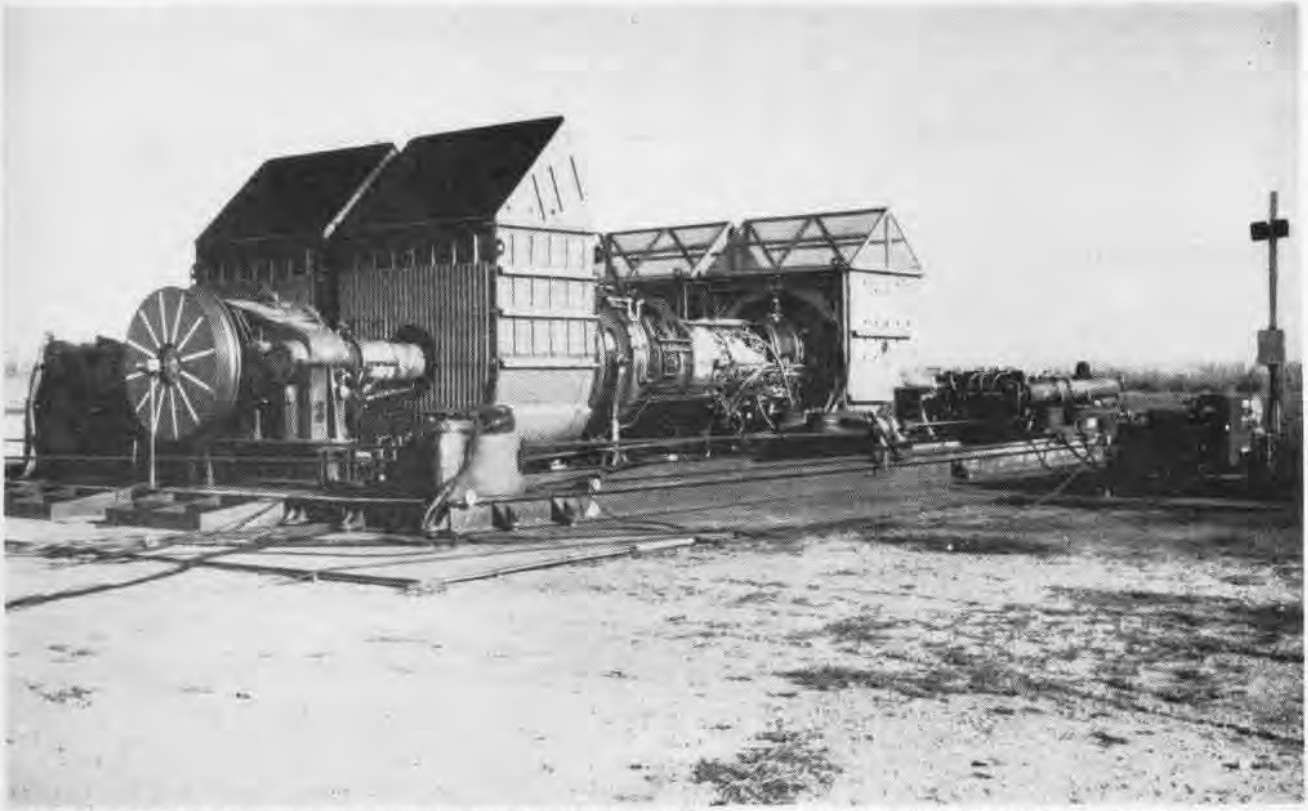
When an aircraft is ready for launch, power is increased on the turbine. With the release of the catapult brake, the aircraft accelerates to takeoff. At the end of the stroke, a nylon rope arrestor disconnects the cable clamp and stops the nose wheel dolly. The nylon rope, stretched by the impact of the dolly, propels the dolly back to the launch end of the runway and is ready to launch another aircraft.

The system has a rapid-cycle capability of 90 seconds and a bi-directional capability should the wind change. The dolly is simply removed from the launching end of the cable and connected to the return end of the same cable. Thus the aircraft can be launched with no difficulty in the opposite direction.

AN A-4 TENSIONED ON SATS CATAPULT

The M-21 arresting system is installed about midway on both sides of the matting. As an aircraft lands at speeds up to 160 knots, a tailhook engages a wire rope pendant. The pendant is attached to nylon tapes, wound on reels, which pay out after the aircraft is engaged. These reels are fastened to water turbines which dissipate the energy of the impact and slow the aircraft to a stop.

At present, the facility has conducted test programs with the A-4, F-4, and F-8 aircraft. Future tests are scheduled for the A-6 and A-7.



SATS CATAPULT FEATURES TWO J-79-2 TURBOJET ENGINES (SAME AS THOSE IN F-4 PHANTOM) WHICH EXHAUST IN A FREE POWER TURBINE

Tests for New Model A-3

VAW-13 Receives the First EKA-3B

At NAS ALAMEDA recently, Carrier Airborne Early Warning Squadron (VAW) 13 received the first operational EKA-3B, the newest model of the A-3. In the photo, Commander Charles R. MacDowell (center), C.O. of VAW-13, receives the EKA-3B from Captain Rupert S. Miller (left), C.O. of the station's Naval Air Rework Facility. Cdr. MacDowell immediately turned the plane over to LCdr. James E. Ostergren (right), the officer-in-charge of the first EKA-3B shipboard detachment. The detachment will conduct pre-deployment tests and qualifications.

When the tests are completed, the EKA-3B will be deployed with attack aircraft carriers.

FIRST EKA-3B IS DELIVERED TO VAW-13

LTV Supply Program Ends

Navy Takes Over Corsair II Support

In September, the Navy's supply system took over the job of stocking and delivering more than 4,600 different types of line items for the A-7A *Corsair II*. For the past two years, LTV Aerospace Corporation has supplied all spare parts for the A-7A except the TF-30 turbofan jet engine.

Planning for a rapid supply system began shortly after LTV started design of the *Corsair II*. Approximately 40 employees were engaged in procuring and issuing spare parts and support equipment to training and operational squadrons. Naval air stations at Patuxent River, Lemoore and Cecil Field were the supply points. Support extended to flight operations on aircraft carriers and gunnery deployments to Yuma, Ariz. The augmented support program has aided in the early deployment of the *Corsair II*.

The A-7 test and pilot training program has accumulated more than 25,000 flight hours using 130 aircraft.

VRF Sets a Safety Record

31,000 Accident-Free Flight Hours

Aircraft Ferry Squadron (VRF) 32, home-based at NAS NORTH ISLAND, recently marked the accumulation of 31,000 accident-free flight hours. The record hours were amassed over an 18-month period.

During this time, VRF-32 pilots and crews have flown all types of naval aircraft, from the newest A-7 *Corsair II* to the oldest P-5 *Marlin*. They have spanned the Pacific and Atlantic, delivering aircraft to Navy/Marine commands throughout the Free World. Some of VRF-32's pilots and aircrewmen are trained and cross-qualified in as many as ten different models of aircraft.

Commander H. W. Jones is the squadron's commanding officer.

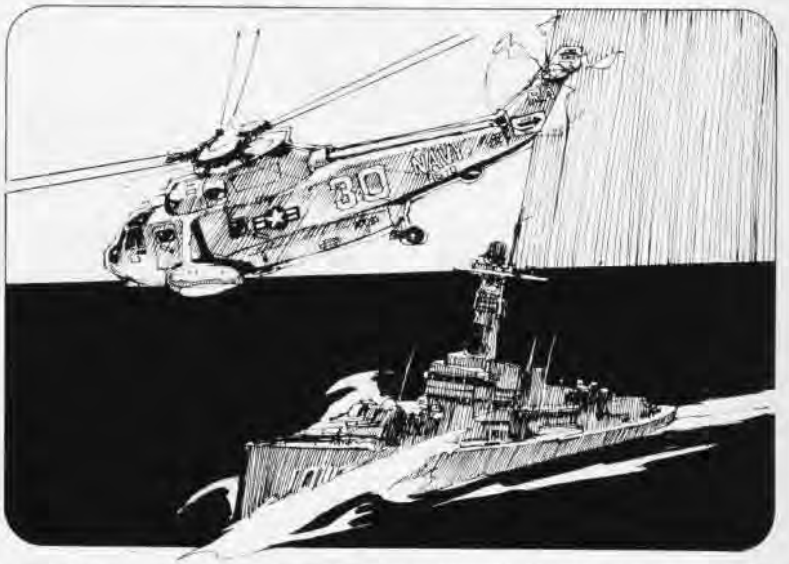
A-7 Received from VA-174

Air Rework Facility Begins Program

The Naval Air Rework Facility, NAS JACKSONVILLE, commanded by Captain C. T. Faulders, Jr., recently received its first A-7A from VA-174, NAS CECIL FIELD.

In December 1965, the facility was designated as the primary rework activity for the A-7A and preparations were begun for the arrival of the aircraft. Personnel were trained, technical data obtained and special support equipment was procured.

The aircraft will serve as the prototype for progressive aircraft rework (PAR). Because it is the first, it will be processed under close engineering and management supervision.



HELICOPTER ANTISUBMARINE *Squadron Ten trains replacement pilots, ASW aircrewmen and maintenance personnel in the Sikorsky SH-3A Sea King. DM3 H. Witver has illustrated VP-10's mission in a series of line drawings that show various training units. Classroom study and detailed briefings are initial steps. One drawing (left) stresses on-the-job training in maintenance. After the basic familiarization with the Sea King and a thorough indoctrination in ASW systems and tactics, coordinated exercises are in order. Then the ASW unit is ready to combine HS and VS aircraft, uniting with destroyers, for the destruction of enemy submarines and the protection of friendly forces.*

By Mary Capomaggi

ALTHOUGH *its aircraft are all of WW II vintage, "Ricketyback Airlines" is providing an efficient, quick means of transporting cargo and men. Ricketyback comes complete with an attractive flight orderly, Joyce Dougherty.*

The Only Way to Fly . . . RICKETYBACK!

It's right up there with Pan Am, TWA and United. It's the E. Ricketyback Co., Air Transporters, based at NAS ALAMEDA, Calif.

E. Ricketyback Co. is really an efficient fleet of transport aircraft—C-117's, C-54's, a C-131 and assorted helicopters—from Alameda, NAS LEMOORE, NAAS FALLON, NALF CROW'S LANDING and NALF MONTEREY. The "Ricketyback" moniker was given the fleet by ComFAir Alameda's operations officer, Commander Harvey J. Broadbent, because the airplanes are all of WW II vintage. But they are far from being rickety. Skilled maintenance crews keep them in top-notch condition.

These "mission support transports" perform a thousand and one tasks. On flights for the Naval Air Logistics Coordinator Pacific, for instance, they carry tons of top-priority cargo and hundreds of men to bases along the Pacific coast and throughout the rest of the U.S. as well. Ricketyback pilots, Naval Aviators assigned to the air stations, think nothing of hauling 1,900 Marine Reservists and all their gear on summer training missions. Regular runs are made from Fallon, Lemoore and Alameda to transport dependents to the Oakland Naval Hospital.

Most of the West Coast's transport work is performed by VR-30, but the squadron has an extremely tight schedule; arrangements for flights must normally be made well in advance. E. Ricketyback, on the other hand, can be more flexible. Only a minimum notice is required to get a pilot and plane.

The fleet's heavy schedule is compiled by the Services/Schedules Branch of ComFAir Alameda's operations division. Here, Lt. Glenn Harris and YN2 James Peterson and their staff prepare the assignments and schedules which are needed to keep 'em flying.

Each day, the branch office receives from 200 to 250 phone calls and a thick stack of teletyped messages conveying requests for transportation, flight advisories and schedule changes. Business is always booming.

In addition, the operations division—working with the staff of ComNavAirPac—coordinates weapon training deployments and aircraft carrier qualifications for ComFAir Alameda's squadrons. Light attack aircraft are also assigned to provide services for ships and other commands.

Appropriately enough, there's a sign in the Schedules/Services Office which reads, "E. Ricketyback Co., Air Transporters. Frequently Scheduled Flights — Frequently Rescheduled. Economy Airlifts (Really Cheap), Deadheads a Specialty. Cable Address: Kofsputalameda."

It's really the *only* way to fly.

Operation 'North Trainer'

Readies VR-21 for Alaska Flights

Fleet Tactical Support Squadron 21 pilots and crews recently returned to NAS Barber's Point from Operation *North Trainer*, a mission providing training in cold weather operations and instrument flying conditions over the fog-shrouded Aleutian Islands.

Personnel of VR-21 frequently fly their C-118's on logistic flights into the Alaskan area along a route from Wake Island to Atsugi and Misawa, Japan, and Shemya, Adak, Cold Bay, King Salmon, Anchorage and Kodiak, Alaska. Because the problems confronting pilots transiting the Alaskan area are seldom found elsewhere, pilots and crewmen must be thoroughly familiar with the hazardous conditions prior to making passenger and cargo flights. This was the purpose of *North Trainer*.

On training flights to Shemya and Adak, VR-21 pilots found the airfields overcast 95 percent of the time, with extremely low ceilings and visibilities complicated by surface winds of approximately 50 knots. Because many of the Alaskan airfields have been carved out of mountainsides, the runways are not always aligned with the prevailing winds.

At Adak, Great Sitkin Mountain towers over 5,700 feet, 30 miles off the approach end of the instrument runway. A pilot knows when he's approaching Adak by the turbulence he feels from the mountain on his letdown.

Still another problem is the distance between airfields. If a pilot's destination should become "weathered in," he must fly hundreds of miles to an alternate airfield. Careful and accurate flight planning is required.

Most departures and landings are accomplished with radar. Elmendorf AFB at Anchorage annually ranks among the top six or seven airports in volume of traffic controlled, but VR-21 pilots landing there experienced a phenomenon known as "ice fog" which forms just above the runway on dry, sunny days when the temperature is extremely low—often several degrees below 0° F. Ice fog is a vapor trail on the ground caused by moisture created by jet aircraft operating at the airport. It lies above the runway, making it impossible for a pilot to make a visual landing.

The last stop on VR-21's *North Trainer* was Kodiak Island. Warmed by Japanese currents, it is the northern limit of an area extending southeast to Seattle, Wash., which is known as the "Banana Belt." This area has mild winters—average temperature is 31° F. —thick forested areas and many cloud and fog formations. Often winds of gale force erupt suddenly, causing damage to aircraft not tied down or in hangars. Kodiak also has 2,700-foot Mount Barometer at the end of its runway with a landing overrun extending up its base.

For the pilots and crews, *North Trainer* was only a seven-day mission, but the training and experience gained prepared them for Alaskan airlifts.

HS-5 Flies 1,800.2 Hours

Quonset Point Unit Sets a Record

Recently, Helicopter Antisubmarine Squadron Five, home-ported at NAS Quonset Point, claimed a record for ASW helicopter flight time when it flew 1,800.2 hours in a single month.

Commander J. G. Kamrad, squadron C.O., and his crewmen, AX1 G. L. Hatfield, ART3 G. J. Wiegand, AX3 F. D. Maneer and AMCS C. B. Stubbs, were the squadron's "high-time" crew.

Editor's Corner

WAIT AND BALANCE. The C-130 *Hercules* cargo plane sits unmoving on the flight strip at Phan Rang. Some of its passengers are sitting, some are standing, all are squirming in the 100-degree heat. Finally, after 20 minutes, the pilot steps into the cargo compartment and announces: "We've got 83 men on board and only 76 seats. So everybody off and we do it again."

Grumbling, we unload, and clamber back aboard as our names are called. After 30 minutes, the pilot is proved absolutely correct: We do have 83 men on board, and there are only 76 seats. So the cargo doors are closed, the extra seven men are strapped atop the luggage like so many suitcases, and off we go to Saigon.—from Frederick Taylor's *Vietnam Notebook*.

Eveready. In some places, people might be surprised to see a golfer talking to his golf bag or a fisherman conversing with his tackle box—but not at NS ROOSEVELT ROADS.

Pilots there carry portable two-way radios with them while on call for alert flights. This enables them to pursue their various activities and still be within easy reach even if no telephones are nearby.

The pilots enjoy this convenient arrangement and can be seen practically anywhere with their battery-powered radios.

U. S. NAVEY? Journalists he encounters are a source of irritation to Seaman Ulysses Samuel Navey. Wherever he goes they want to do a story on him.

But when a man has a name like U. S. Navey, and he's serving in the U. S. Navy, you can't really blame the publicity people for trying to make a play on it.

"My nieces and nephews call me Uncle Sam," said U. S. Navey, who is now stationed aboard the LST *Garrett County* off Vietnam. "My father, Clyde Baxter Navey, was a boatswain's mate in the Navy for eight years. Lots of times I asked him why he named me U. S., but he's never answered."

He has five sisters, Claire, Marsha, Linda, Jean and Judy. And of his brothers, the fourth one is named Upton Steven Navey.

U. S. Navey is getting ready to join the U. S. Navy as soon as he reaches enlistment age, according to his sailor brother, U. S. Navey.

Peaceful Coexistence. Shipboard aviators have finally taken a shine to their black-shoed, seafaring cohorts, at least aboard one carrier.

Friendly rivalry between the two groups has flourished in the Navy since the inception of air power. Limited most often to a banter of words, the competition has enlivened conversation and spirit wherever the two were in contact.

"Blackshoes" aboard *Saratoga*, chafing at the aviators' excellent public relations, have honored themselves with a plaque in the wardroom.

Appropriately mounted on a mahogany crest is a perfectly split, spit-shined black shoe.

This addition to *Sara's* decor was affixed to its rightful place on the bulkhead—centered between the large, mounted wings of a pilot and those of a flight officer.

Placed there by *Sara's* engineering department, the plaque is a constant reminder that "blackshoes" serve in the very heart of the Navy.

We understand the aviators are actually glad to have them aboard.

Old 'Friends' Meet Again

Hot Gossip Dept.: With former crewmen of his last command, USS *Ranger*, aiding and abetting, Capt. Leo B. McCuddin recently held a secret liaison with an old friend, "Kuddles McKuddin," while he was a patient at Bethesda Naval Hospital. This topped even the former scandalous act of making "Kuddles" a member of the CVA's crew. "Kuddles" is a real doll.

LETTERS

Enlisted Pilot

SIRS: I was very interested in the article in the September issue of NANEWS regarding the early enlisted pilots. I remember most of those enlisted's. They were a great bunch.

However, the most important one was overlooked. He is George Enos. He was the most important for he was the one who taught me to fly. He, also, at that time, had the most hours in the air as he was the smallest and lightest. I don't think he weighed over 115 pounds. Because of his light weight he was able to get an N-9 off the water when there was no breeze. The others couldn't, they weighed too much.

A. K. WARREN, JR
Naval Aviator #183

79 Tillinghast Place
Buffalo, New York, 14216

Correction

SIRS: Just a note to clear up a point I noticed in the September issue of *Naval Aviation News*.

On your inside back cover, you listed VF-14 as being stationed at Cecil Field, Fla. VF-14 is an Oceana-based unit.

We enjoyed JOC John Burlage's enlisted pilot story very much. It shows excellent research and good writing.

V. PAUL REYNOLDS
Public Affairs Officer

NAS Oceana
Virginia Beach, Va., 23460

Hero's Name for New BOQ

Ellyson Field Honors Maj. Owens

On September 28, 1967, assisted by Rear Admiral Dick H. Guinn, Chief of Naval Air Basic Training, Mrs. Coma L. Owens cut the ribbon opening Owens Hall, a beautiful new BOQ and wardroom mess at NAAS Ellyson Field, Pensacola, Fla. The new facilities are named in honor of her husband, Major Jack C. Owens, who was killed in Vietnam in March 1967.

Maj. Owens received his Marine commission on December 16, 1957, and his designation as a Naval Aviator on June 12, 1958. Ordered to a Marine operational squadron, he did not return to HT-8 at Ellyson Field until December 1964, this time as an instructor. In August 1966 Maj. Owens departed for duty in South Vietnam and was assigned to Marine Observation Squadron Two.

On March 28, 1967, as pilot of a UH-1E helicopter, Maj. Owens was leading a flight of two helicopters on a visual reconnaissance of the immediate area surrounding the Dong Ha airfield. His helicopter was hit severely by an undetermined number of large and small calibre hostile fire. The aircraft crashed immediately, fatally injuring all occupants.

High-Speed Refueler Used

Jumbo Unit Operates at Patuxent

NAS PATUXENT RIVER is using an 8,000-gallon, high-speed aircraft refueler that delivers fuel to aircraft at 600 gallons per minute through two 2½-inch hoses.

The large capacity unit, designed to deliver filtered fuel fast to aircraft, reduces ramp load time by 66%. It also cuts down the top-off frequency to the huge unit and reduces time spent on the road between aircraft and fill stand. A further innovation is bottom loading which enables the refueler to be filled faster.

NANEWS PHOTO AWARD

An award for the best single photograph, appearing during the calendar year in *Naval Aviation News*, will be presented after publication of the December 1967 issue. The award is the first of its kind to be presented by the magazine, and will be made annually.

Selection of the year's outstanding photograph will be made by the staff of NANEWS. Only those photographs which have appeared in the magazine, *whose photographer can be identified*, will be considered. Photos will be judged on the basis of mechanical excellence and presentation of subject.

The award will be in the form of an appropriately inscribed plaque. This year's winner will be notified, through his commanding officer, shortly after the December issue is published.

A New Wheel Tie-Down

Saves Squadron $2,642 in a Year

At NAS PENSACOLA, ADRC Thomas Elder, line chief of Training Squadron Six, recently received an incentive award for a nose-wheel tie-down he made of scrap material.

The old tie-down chains damaged the squadron's T-28's, but since Chief Elder's invention was adopted in February, VT-6 has not had an aircraft damaged by nose-wheel tie-down. His idea saves VT-6 $2,642 annually and reduces down-time of aircraft.

30,000 Accident-Free Hours

Four-Year Safety Record for HS-1

Helicopter Antisubmarine Squadron One, NAS KEY WEST, Fla., recently completed its 30,000th accident-free flight hour. The 30,000 hours were amassed in a four-year period. The record flight was made in an SH-3A *Sea King* piloted by Lt. F. P. Quinn. Ens. C. H. Morris was copilot and AX1 D. H. Skinner was crewman.

Commander R. E. Schock is commanding officer of the squadron.

Veteran Pilot at Corpus

N.A. #52 Pins Wings on Grandson

Vice Admiral C. P. Mason, USN (Ret.), recently returned to NAS CORPUS CHRISTI to designate his grandson a Naval Aviator. While there, he was the guest of Rear Admiral R. A. Macpherson, Chief of Naval Air Advanced Training. In 1943, VAdm. Mason was Commandant of the Naval Air Training Center at Corpus Christi.

Ens. C. P. Mason III is the third generation of his family to graduate from the Naval Academy and go on to earn his Navy wings. His father, C. P. Mason II, died in an aviation accident at Fallon, Nev., while on active duty as a Naval Aviator.

Upon being designated a Naval Aviator, Ens. Mason gave an engraved plaque to his grandfather which read: "Presented to Vice Admiral C. P. Mason, USN (Retired), marking three generations of U.S. Naval Academy alumni in Naval Aviation, from Ens. C. P. Mason III, USN."

VAdm. Mason's distinguished career in Naval Aviation began in 1917 when he was designated Naval Aviator No. 52. After WW I, he organized the first seaplane patrol squadron in the Pacific and led the squadron on its successful flight from San Diego, Calif., to Panama, Canal Zone, and return, in January-March 1921.

He served on the aircraft carriers *Langley* (CV-1), *Saratoga* (CV-3) and *Yorktown* (CV-5). The Navy Cross was presented to him for outstanding service as skipper of the ill-fated USS *Hornet* at the time of her gallant fight against overwhelming odds in the Battle of Santa Cruz.

Patrol Squadron 45, homeported at NAS Jacksonville, Fla., flies P-3A Orions on its antisubmarine warfare patrols. Led by Commander J. W.Townes, Jr., the squadron recently began a six-month deployment to Bermuda. Commander H. D. Wilbur is scheduled to take command of the 'Red Dart' squadron late this month.

THE DOOR WILL BE OPEN...

. . . for this young man when the time comes for him to make a decision about satisfying his obligation to serve his country. Although that day is still many years away for this youngster, he can be certain that the Navy will be able to offer him an exciting, rewarding opportunity for a profession in some aspect of Naval Aviation. All he must do to fulfill his dream of becoming a Naval Aviator, for instance, is to start thinking of the Navy's requirement for properly-motivated, college-trained young men. If college is not in his future, there are still many aviation-oriented fields in which he may excel—and he will receive specialized training in one of those fields from the Navy.

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