

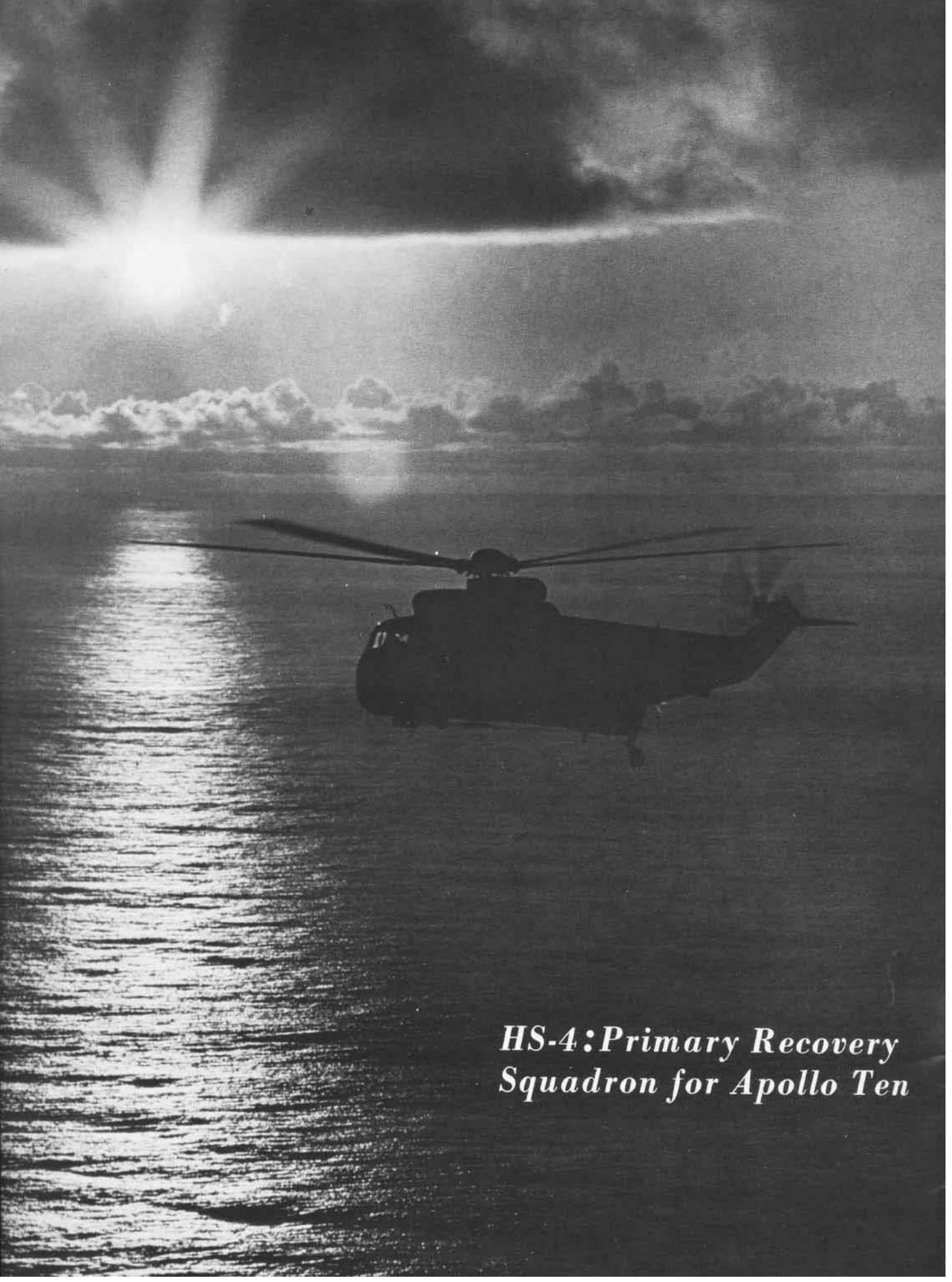
NAVAL AVIATION
NEWS



JULY 1969

50th Year of Publication

NavAir No. 00-75R-3



*HS-4: Primary Recovery
Squadron for Apollo Ten*



NAVAL AVIATION NEWS

A Special Booklet

Of great interest to aviation buffs is the special booklet, brought out by the NC-4 Anniversary Committee, which carries the articles featured in the May issue of *Naval Aviation News*: the flight of the NC-4 in 1919 and the restoration of the aircraft that made the first trans-Atlantic flight.

The booklet was released May 8 at the time the NC-4 was put on exhibit by the Smithsonian. It proved at once to be a popular 'best seller.'

The article of Commander Ted Wilbur and the report of the NC-4 restoration by JOC James Johnston are enhanced by the color covers and the greatly increased photo coverage. This booklet will in all probability become a collector's item, worth far more than its original cost, for it commemorates in a distinguished way what will always be listed as one of the U.S. Navy's most memorable 'firsts.'

If any of our readers would like to add this booklet to his collection of naval memorabilia, it may be obtained by sending a check or money order in the amount of one dollar to the NC-4 50th Anniversary Committee, c/o Smithsonian Institution, Washington, D.C., 20560.



Vice Admiral Thomas F. Connolly
Deputy Chief of Naval Operations (Air)

Rear Admiral Frederick H. Michaelis
Assistant Deputy Chief of Naval Operations (Air)

Captain Paul Jayson
Head, Aviation Periodicals and History Office

FEATURES

Training Devices for the Fleet 6

In the fourth in a series on U.S. Naval Aviation training devices, JOC John D. Burlage reports on the unit in the office of DCNO(Air) which directs their procurement and distribution.

A Time for Reminiscing 12

When the Smithsonian Institution put the refurbished NC-4 on exhibition May 8, early pilots and crewmen, together with today's pilots in the Navy, recalled old times and the triumph of the aircraft that crossed the Atlantic for a Navy "first."

Six Hundred Seconds over the North 18

JOI L. Carter Keck vividly describes the speed and efficiency of a photo-recon mission over North Vietnam.

P-3C Orion Headed for Patuxent 26

Patuxent River pilots and crews look forward to the arrival of the P-3C as they are instructed in its special capabilities, particularly the A-NEW antisubmarine warfare system.

THE STAFF

Commander Ted Wilbur Editor
Izetta Winter Robb Managing Editor
Robert L. Hensley Art Director
Dorothy L. Bennefeld Associate Editors
JOC James Johnston

Cdr. Donald E. Maunder
LCdr. Neil F. O'Connor Contributing Editors
JOC John D. Burlage

Harold Andrews Technical Advisor

Published monthly by the Chief of Naval Operations and Naval Air Systems Command to provide information and data on aircraft training and operations, space technology, missiles, rockets and other ordnance, safety, aircraft design, power plants, technical maintenance and overhaul procedures. Issuance of this periodical is approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. Send mail to Naval Aviation News, OP-05D, Navy Department, Washington, D.C. 20360, located at 3828 Munitions Building; telephone, Oxford 62252 or 61755. Annual subscription rate is \$7.00 check or money order (\$1.75 additional for foreign mailing) made payable and sent to the Supt. of Documents, Government Printing Office, Washington, D.C. 20402. A single copy costs \$.60.



NAVAL AVIATION NEWS

Woman Officer Receives Honor Elected a Fellow in Aviation Medicine

Captain Mary F. Keener, MSC, USN, was elected a Fellow in Aviation Medicine at the 40th annual meeting of the Aerospace Medical Association at San Francisco. This is the first time in the history of the organization that a woman has been so honored. No more than 15 Fellows in Aviation Medicine are elected in any one year.

Captain Keener is Chief Aerospace Physiologist of the Navy. She is head of the aerospace physiology systems requirements section, Bureau of Medicine and Surgery. In this capacity, she plans, directs and coordinates the Aerospace Physiology Training Program for Naval Aviation personnel. She is the first woman officer to attain the rank of captain in the Medical Service Corps.

At the same meeting, Captain Roger G. Ireland, MC, USN, director of the crew systems division of the Naval Air Systems Command and head of BuMed's aerospace medicine equipment branch, received the Eric Liljencrantz award for his contributions to aerospace medicine in the areas of altitude and acceleration stress which have improved the lot of Navy and Marine Corps operational aircrew personnel.

A C-47 'Gooney Bird' Transferred Placed in New Zealand Science Museum

Custody of a 27-year-old U.S. Navy C-47 has been given to Ferrymead Museum of Science and Industry in Christchurch, New Zealand.



C-47 PRESENTED TO NEW ZEALAND

In ceremonies at the Christchurch Airport, the U.S. Ambassador to New Zealand, John F. Henning, presented the aircraft's logbook to Mayor A. R. Guthrey who acted in behalf of the museum. The mayor's acceptance marked the "indefinite loan" of the "Gooney Bird" plane to the New Zealand government.

Identical in model and configuration to the first aircraft to land at the South Pole, the Gooney Bird is one of the oldest military C-47's anywhere in the world.

"This plane in its durability," Ambassador Henning said, "is a realistic symbol of the relationship of our peoples since the war, since Pearl Harbor, the battle of the Coral Sea and the long battle in the Pacific."

The plane on loan was first accepted by the U.S. Navy in 1942. It subsequently served in Navy and Marine Corps units until its transfer to

the U.S. Navy Antarctic Development Squadron Six in 1963. In all, the C-47 flew 493.5 hours in the Antarctic and made 218 ski landings and 27 wheel landings.

Mr. S. Wood of the Ferrymead Museum said the plane would be housed at Christchurch Airport until suitable accommodation is built at Ferrymead.

300,000 Flight Hours Amassed A Record for Training Squadron Nine

In late March, Training Squadron Nine counted its 300,000 flight hour since its commissioning in December 1961. Ltjg. J. P. Brickey, instructor, and Ens. J. R. Brooke, flight student, chalked up the record hour.

To accomplish this milestone, the squadron has averaged 250-350 flight hours per day while 2,425 students have completed its flight program.

VT-9 has 76 T-2 *Buckeyes* which are maintained by 393 enlisted men. With a monthly average of five aircraft in progressive rework and 20 down for scheduled inspections, it is estimated that approximately 7.8 maintenance man-hours are needed for each flight hour.

Cdr. T. B. Evans is C.O. of the unit.

Navy Awards Contract for LHA's Litton to Build Amphib/Warfare Ships

Secretary of the Navy John H. Chafee has announced the award of a Navy contract to Ingalls Shipbuilding Division of Litton Industries, Pascagoula, Miss., for the construction of a

new multi-purpose amphibious warfare ship.

Under the contract, Litton will produce the first of the Navy's General Purpose, Amphibious Assault Ships (LHA's), a new class of combat vessel. Delivery is expected to commence in the spring of 1973 and continue into 1975. Construction of nine ships is contingent upon continued congressional approval of the program.

Faster and more versatile than any modern amphibious warfare ships now in the fleet, the LHA will perform a mission which currently requires four different types of vessels. As large as an Essex-class carrier, the LHA combines the features of an amphibious assault ship (LPH), the amphibious transport dock (LPD), the amphibious cargo ship (LKA) and the dock landing ship (LSD) into one modern ship capable of transporting and putting ashore an entire Marine battalion landing team and its combat equipment.

Incorporated into the design of the LHA will be such new safety features as a fire detection system that operates by sensing products of combustion in addition to normal temperature rise sensors, and a fully automated steam propulsion plant which can be controlled from a central, remote location.

Command and control systems of the LHA will include modern semi-automated communications equipment. Facilities for all-weather traffic and approach control of helicopters and boats are provided. For defense against surface and air attack, the LHA will be equipped with five-inch guns and point-defense missiles.

Captain R. E. Wilkinson of the Naval Ship Systems Command is the project manager for the LHA program.

Tailhook Reunion is Announced Will be Held at Las Vegas in October

The thirteenth annual Tailhook Reunion will be held in Las Vegas, Nev., October 3, 4 and 5. Although no individual membership fee for 1969 has yet been set, it will probably run to about \$43 to cover the cost of the two-day affair. Pilots and officer aircrewmembers, both active and retired, who



PARTICIPATING in awards ceremony are RAdm. Turner, CNAVanTra, Mrs. Felix Irwin of Corpus Christi DAR, Mrs. Woolley, Lt. Lewis, Ltjg. Bone, VAdm. Streaan, CNAtra.

have made at least one carrier landing, are eligible.

The Tailhook Association was formed some 12 years ago at NAS North Island as an incorporated (California) non-profit organization. For the past seven years, it has been meeting in Las Vegas for its yearly reunion. It is the only Navy/Marine/Air Force/Industry event in which active and retired carrier aviators can get together to discuss problems of pilot retention, morale and over-all improvement of tactical carrier flying.

For additional information about the reunion, those interested should get in touch with Captain Hugh J. Tate, C.O. of VRF-32, NAS San Diego.

Top Student Aviators Honored Texas DAR Regent Presents Awards

At ceremonies at NAS Corpus Christi, the Texas Society of the Daughters of the American Revolution presented the DAR's 14th annual "Armed Services Awards" to three honor graduates of the Naval Air Advanced Training Command.

Each year the top Navy, Marine Corps and Coast Guard student pilots who attain the highest over-all score for their respective service throughout basic and advanced flight training are

presented gold engraved wristwatches by the DAR. The recipients this year were Navy Ltjg. Theron C. Bone, Marine 1st Lt. Don C. Lewis and Coast Guard Ens. Jacob Mast. Mrs. Buck Woolley, Texas State Regent, presented the awards to the three aviators.

Lt. Bone completed his flight training with VT-27 in July 1968 with a grade of 80.96. He is now serving with VP-9 at NS Sangle Point, R.P.

Lt. Lewis completed his jet pilot training with VT-25 in August 1968 with a grade of 81. He is now assigned to VMF-451 at MCAS Beaufort, S.C., where he flies the F-4J Phantom. Previously, he also received recognition as the "Outstanding Naval Aviation Student of the Year" from the National Society, Daughters of the American Colonists.

Ens. Mast completed flight training with VT-28 in September 1968 with a grade of 82.47. He is now assigned to the Coast Guard Air Station, Elizabeth City, North Carolina.

At the same ceremonies, Rear Admiral Frederick C. Turner, Chief of Naval Air Advanced Training, was awarded the National Order of Vietnam and the Republic of Vietnam Gallantry Cross. Vice Admiral Bernard M. Streaan, Chief of Naval Air Training, presented the two awards to Rear Admiral Turner.



GRAMPAW PETTIBONE

'This Way to the Egress'

The TA-4F two-place *Skyhawk* jet trainer was preflighted by two pilots in preparation for a night bombing and instrument practice mission. Both external tanks were noted to be half full, and, upon strapping in, the pilot in command, a major, found he had unsatisfactory interphone communication with the rear seat. He called for a technician who checked it out and found the seat pan fittings were bad. He attempted to bypass the seat pan and connect the oxygen hose directly to the aircraft. When queried by the pilot, the technician admitted there would then be no bail-out oxygen available. The pilot decided to wait the 30 to 40 minutes necessary to replace the seat pan.

The remaining checks went normally, and the flight departed for the target area. In the rear seat, the lieutenant colonel took control of the aircraft while the pilot handled the radios.

Over the target, the major took the airplane, completed his runs and again



turned the *Skyhawk* over to the "guy in the back" for instrument practice. After the plane had been airborne for over half an hour, a turn was made toward home plate for a radar vector to a GCA approach. It was then noted that the Tacan had broken lock-on



and, as the major was cross-checking his fuel gauges, the low fuel warning light came on. Before there was time to analyze the situation, all the lights went out and the ICS failed. Expecting a flame-out momentarily, the major reached to deploy the emergency generator and suddenly the canopy blew off. He had grabbed the wrong handle.

The blast of cold air buffeted both pilots harshly about the cockpit. Soon the pilot managed to get the emergency generator deployed, and the lights came back on. He then took control of the airplane, which was slightly left wing and nose down, retarded the throttle and tried to pull back on the stick. It did not respond to stick forces, so the major actuated the speed brake switch. The brakes didn't come out, so he then reached for the manual brake handle.

Suddenly he was jerked back rightly into the seat and saw a flash as the rear seat ejected from the aircraft. Then, bang, out he went into the blackness.

Earlier, the lieutenant colonel in the rear had noticed the fuel needle dropping and thought the pilot was just checking the gauge. When the low-level light came on, he tried to call on the interphone but found it dead. As he was checking his headset cord, the lights went out. The next thing he knew, his oxygen mask and hose blew up into his face, and the canopy was gone. Even with his visor down, he couldn't see very well. Finding that he had not been ejected as he expected, he reached out to retrieve his mask and adjust his helmet. The wind quickly took his right arm and pinned it back along the outside of the cockpit. Using his left arm, he retrieved it. Then he lowered the seat and positioned himself properly, still expecting to be ejected at any moment.

The *Skyhawk* was now descending left wing and nose down. There was no way to tell if the major was all right or

if he was in control of the aircraft. As the buffeting became more severe and the plane continued to accelerate in a shallow left spiral, the lieutenant colonel tried to pull back on the stick without success. Noting 8,000 feet of altitude and still unable to communicate with the major up front, he decided to get out. Using the command selector and the alternate firing handle, the lieutenant colonel ejected himself and the major from the plane.

Both officers landed in the trees and, after several misadventures involving signal flares and the jungle penetrator hoist (another story in itself), were rescued by helicopter.



Grampaw Pettibone says:

Doggone cantankerous beast! Even two of them couldn't keep ahead of it. Nothin' like abandonin' the ship if the goin' gets too rough, but was this nylon let-down really necessary? Even the accident board couldn't decide.

Did they actually run out a fuel? Experience other material failure? Or was it just the loss of the generator? Did the canopy hit the horizontal stabilizer? Or didn't the crew try hard enough to maintain control? Since the wreckage wasn't recovered, the truth will never be known.

However you stack it, it looks like poor crew coordination and lack of cockpit familiarity on the part of the pilot. Who was really in control of the aircraft after the lights went out? Nobody, I guess.

And while we're pointin' fingers, I'd hate to count the number of canopies we've lost because the design engineers put the canopy jettison handle right next to the emergency power package. And what about the supervisor who sent this pilot on a night attack practice mission with only 37 hours in the aircraft? No wonder he clutched up.

Triple Threat Jock

The flight of four Crusaders departed their home station for bombing and strafing practice. They arrived over the desert target on schedule and set up a pattern.

On his first strafing run, the number two man, a Ltjg., was right on target with a 20mm burst. He rolled in at 5,800 feet for his second run and set up a 23° dive. He squeezed the trigger at 1,500 feet and began his pullout as he passed 1,100 feet. He remembers putting some positive G on the aircraft and looking to the left to check



interval with the flight leader. Suddenly, he realized that the desert sagebrush was zooming past the canopy much too fast and much too close. He vaguely recalls an impact, then woke up later and saw black smoke.

The aft section of the F-8H struck the desert floor with a very small rate of descent in a wings-level, nose-up attitude. After skidding 200 feet, the craft became airborne while transversing a shallow depression in the terrain. Four hundred feet further along, it struck the ground again and disintegrated. The pilot either pulled the face curtain while the plane was airborne following initial touchdown or the ejection seat was fired by the disintegration of the cockpit when it hit again.

The ejection gun had only propelled the seat 16 inches up the rails before the tubes were bent and frozen by the progressing damage. The fighter pilot must have left the cockpit in a flat trajectory at a forward speed in excess of 300 knots. The seat drogue chute had deployed, and his personal parachute was ripped and torn.

The seat was found 300 feet beyond the pilot along the line of flight. It is

probable that he was decelerated and pulled from the seat as his personal parachute caught on vegetation. He struck the ground hard, leading with the seat pan and right foot. The bottom of his right boot was completely torn off by the impact. The seat pan absorbed much of the force that would otherwise have caused major spinal injuries.

Target crewmen reached his side almost immediately, finding the pilot fully conscious. Although he very nearly expired en route to the nearest naval hospital, the young man rallied and has since made a good recovery.



Grampaw Pettibone says:

Thunderation! This lad had a purty narrow squeak. He was really out to clobber that target. First, he bombed it, then strafed it, then flew into it. Hope this'll be a lesson to a few other over-eager tigers. Better they should miss a few and come tack to try again another day.

If Only . . .

'This accident could have been avoided if my date last night had not been so obstreperous.'

Successfully How to [^]Second Guess Fleet Training Requirements

By JOC John D. Burlage



COMMANDER VERNON D. ROSE, JR.

There is a small, electrically operated facsimile of a common traffic signal on the wall of the Pentagon office headed by Commander Vernon D. Rose, Jr. At his desk, Cdr. Rose punches the buttons that make it flash red, yellow or green.

When the light is red, Cdr. Rose is in the middle of some kind of flap and is not to be disturbed by anyone short of a messenger from heaven (or maybe an admiral).

When it is yellow, he will accept only certain calls and visitors.

When it is green, he will talk with anybody about anything.

Usually, the signal is red. It seems the Washington assignment the former air boss of USS *Yorktown* has had for the past two years comes with its fair share of flaps.

Specifically, he is head of the Aviation Training Device Requirements Branch (Op-563), a unit of Captain J. M. Thomas' Aviation Training Division (Op-56) in the office of DCNO(Air).

Op-563 is a small shop, as Pentagon offices go, but there is nothing small about its mission: It is the DCNO(Air) way station in the multimillion-dollar business of creating, funding, allocating and distributing hundreds of major, and thousands of minor, Naval Aviation training devices.

"Devices," in this case, mean any-

thing from 55,000-lb. weapon system trainers and electronic warfare complexes valued at millions to one-pound slide/tape packages and 59¢ card decks describing the flora of S.E. Asia. Altogether, they account for an annual budget for Op-563 that last year topped \$53 million.

The mission means Cdr. Rose and his three-man staff — Cdr. W. Dale Williamson, Chief Trademan Paul E. Retherford, and a civilian assistant (the latter position was vacant when this story was written) — are solely responsible for allocating and inventorying more than \$600 million worth of training devices.

The mission is demanding. Learning how the mission is carried out entails learning about the men who do it.

Perhaps the best way to describe Cdr. Rose's personality is to call it explosive. A person who talks with him at any length is not apt to forget him quickly.

A 1946 graduate of the Naval Academy, the commander earned his wings in October 1950. He has flown AD's, F-9's and A-4's; tours at sea have taken him aboard five carriers (*Yorktown* was the most recent). He has held billets ranging from Naval Academy instructor to squadron executive officer.

When he took over Op-563 in March 1967, Cdr. Rose brought with him an unorthodoxy that is still obvious. It is represented by that traffic light — and also by the bright blue carpet he has had installed in his office.

But the commander says there is a reason for his flamboyancy. He uses it to make sure that people learn about Op-563.

"The light is a promotional gimmick as are the rug and the fancy secretary at the door," he says. "People are becoming more aware of our mission and capabilities, but you still have to get 'em into the tent."

There are those who might doubt the necessity for any additional visitors — especially since the commander's involvement with almost every aspect of aviation training device programs means he works constantly with representatives of virtually all military organizations that have anything to do with this equipment.

Among them are other DCNO(Air) offices, the Naval Material Command,



IN THE TRAINING DEVICES EXHIBIT DISPLAYED ON THE PENTAGON CONCOURSE, THE A-7E TRAINER IS IN FOREGROUND.

the Naval Air Systems Command, the Naval Electronics Systems Command and the Naval Training Device Center (NTDC). Op-563 also maintains liaison with Army and Air Force offices working with training devices.

"When you first hear of this office, you might think it related only to the aviation training command — at Pensacola, Meridian and Corpus Christi," the commander says. "But it doesn't. We are primarily responsive to fleet requirements, because that's where the training command end product, the Naval Aviator, is assigned. The ultimate evaluation of the effectiveness of training devices is measured in the ability of pilots and aircrews to deliver a weapon to a target.

"Basically, Op-563 coordinates fleet requirements with other DCNO (Air) offices and other organizations involved. Meeting the needs of the fleet requires allocation and distribution of devices as well as some budgetary work in anticipation of new devices and re-procurement of old ones. In budgeting, we work closely

with NavAirSysCom and NTDC."

Op-563's involvement with the creation of training devices, especially major types, comes early in a complicated process. In general terms, Cdr. Rose says, it works this way:

"These are the major sources for training device requirements — new weapon systems, research and development, and fleet and training activities. When a device is to be built, its military characteristics are submitted to this office by NTDC through NavAirSysCom. Part of the package is a technical review the command makes to assure the device will be current with the latest engineering change proposals for the weapon system.

"We approve the characteristics or modify them as required. Then we forward approved requirements to NavAirSysCom — our counterparts there work in Air-413 — for appropriate funding. Under this management and with technical assistance from NTDC, qualified training device contractors develop, manufacture, install and test the trainers.

"It is a function of funding and a function of time. The ready-for-training day should be, and normally is, established up to three months before the aircraft is ready, so pilots and crewmen can be trained in advance of the arrival of the plane in a normal, functional 'marriage' of crew and airplane.

"After the cycle starts, it becomes a matter of continuing, close coordination among the different agencies to assure that everything goes together and the device is built to specifications. Once built, the coordination continues to keep it updated and operating effectively."

The key word is *updated*. In weapon systems, change is the name of the game — and alterations to weapon systems require alterations to their training devices.

A case in point is a major training device for the Navy's newest attack aircraft, the A-7 Corsair II, designated 2F84, Operational Flight/Weapon System Trainer (*NA News*, January 1969, pp. 6-9).

"Device 2F84 represented a major procurement since it is the primary trainer for the *Corsair II*," Cdr. Rose says. "It consists of the 'flight' portion, for which the contract was awarded to Melpar, Inc., and the 'tactics' segment, built by the Link Group."

When Cdr. Rose was interviewed for this *NA News* article, he was deeply embroiled in changes to the 2F84 to bring it in line with the new E version of the *Corsair II*. At the time, two of the 2F84's were being reworked — one "in plant" and one at NTDC. Among the required modifications was a major reprogramming of the 2F84's digital computer.

"Determining changes to major trainers involves another complicated process," Cdr. Rose says. "As a weapon system is changed, trainer change proposals are established to parallel the engineering change proposals for the system itself. All approved aircraft changes are reviewed by a board composed of Air-413 and NTDC people to select those that should be incorporated in the trainers. The board members are engineers and training device specialists who are familiar with the systems and the need for realistic simulation of the weapon system.

"Naturally, there's a funding problem here — and a time problem, too. You don't want the weapon system changed with a two-year wait in store for getting the trainer up-to-date. Similarly, but not often, we get the trainer up-to-date only to learn the weapon system change is behind schedule.

"Op-563's goal is to assure that on the day the weapon system is changed, the trainer is modified to cope with that change.

"In the case of the A-7E, we want to meet fleet introduction of the new aircraft with properly modified trainers; this means one each at Cecil Field and Lemoore. Then, because of the present projections of the size of the buy of aircraft, we will follow up with new trainers built specifically for the A-7E. These will be 2F84B's.

"We're in the process of getting that procurement package going right now, so that as our utilization of the



devices now on hand approaches 100 percent for a 16-hour day, new trainers will appear in time to provide training for the tremendous influx of pilots into the *Corsair II* program. In short, we'll not get behind the aircraft; instead, we'll try to stay ahead of it."

There is more to Op-563's goal of "staying ahead" of trainer utilization than riding herd on weapon system changes. Some fancy juggling of devices already built is often called for.

"The allocation and distribution of trainers, especially major and one-of-a-kind types, is an important function of this office," Cdr. Rose points out. "Right now, we have 215 of them serving ComNavAirPac, ComNavAirLant and the training commands. We also provide major weapon system trainers for the Fleet Marine Forces in both the Pacific and the Atlantic.

"As you might expect, we don't

play 'musical chairs' with major trainers once it's determined where they're to be positioned, because they're tied primarily to aircraft sites.

"But we do move some of the more than 2,000 minor devices we control. We rely on utilization figures we receive monthly and quarterly to tell us how well the devices are being used. If a trainer falls below a 30 percent utilization factor, we'll take a hard look at the possibility of moving it to a command that might get a 75 or 80 percent factor. So when we do move trainers around, we do it to fill the greatest need."

When he discusses the operation of his office, Cdr. Rose constantly emphasizes the "team approach." He is most liberal with praise for his subordinates.

The senior among them, Cdr. Williamson, has been described as an extremely calm, easy-going officer



The training devices which were recently exhibited on the Pentagon concourse attracted a good deal of favorable attention from all services. TDC Paul E. Retherford (above) is the "backbone" of the training devices office, Cdr. Rose says. On page 10, Capt. J. M. Thomas, director, aviation training division, tests A-7E cockpit trainer.

whose "computer memory" is often called on to pinpoint everything from correspondence location to trainer use factors.

Cdr. Williamson entered the Navy flight program in 1943; he received his wings in December 1944. He has flown SBD's, TBM's, F6F's, F8F's and S-2's. He has served in Op-563 since March 1967.

"Cdr. Williamson works primarily with most of the large weapon system trainers, usually in close contact with his counterpart in Op-506," Cdr. Rose says. "He is also our point of contact with the Chief of Naval Air Reserve Training; he is a TAR himself, and he is familiar with the reserve component of the Navy. We have many, many trainers in the reserves."

TDC Retherford has more than 26 years of Navy service behind him. He broke into the training device business by attending one of the old Link

trainer schools in 1942 and was soon teaching basic instrument flight in the famous Link "blue box" basic trainer.

"Rusty Retherford is the backbone of the office and our indispensable man," Cdr. Rose declares. "A man with his technical background is required to provide us with the assistance we need to make a determination of what we're going to procure, as well as what we're not going to procure — and sometimes knowing what not to obtain is most important."

"He is our principal advisor and technical assistant. To keep abreast of what's going on in the field, he maintains continuing liaison with his counterparts in the field. This same liaison — especially with trademen in the Fleet Airborne Electronic Training Units and in the training commands — assures us that we will stay on top of future requirements."

For the time being, the Navy men

in Op-563 are filling the gap left by the vacating of the office's civilian billet, an important one concerned with films, literature and publications.

"All aviation films sponsored by DCNO(Air) are coordinated through this office," Cdr. Rose says. "The civilian assistant works directly with the Naval Photographic Center in everything from their scripting to their allocation. He is also involved in instructional television."

"Another requirement for the civilian is assisting in the budgetary drill we go through each fiscal year; it revolves around screening requirements from the type commanders for minor training devices."

"Naturally, the requirements far exceed the budget. So the civilian helps establish priorities. Here, too, we have the duty of keeping the type commanders, as well as NTDC and NavAirSysCom, informed of just what

they can expect in the procurement process.”

Describing the duties of Cdr. Rose's assistants rounds out the picture of the Op-563 mission and its fulfillment.

Working as long as he has with the training device program at the Washington/DCNO(Air) operating level has left Cdr. Rose with a list of accom-

plishments to which he points with pride — and some very specific attitudes toward the training device business.

Besides updating the *Corsair II* 2F84 flight simulator, Op-563 has originated a five-part operator training package for electronic warfare, an electronic countermeasures trainer for the

EKA-3B *Skywarrior*, an operational flight trainer for the TA-4J *Skyhawk* and a training program for the P-3C *Orion*.

The office has also revised the publication, *Aerodynamics for Naval Aviators*, drafted the basic manual on instructional television and established allowance lists for projection and sound equipment.

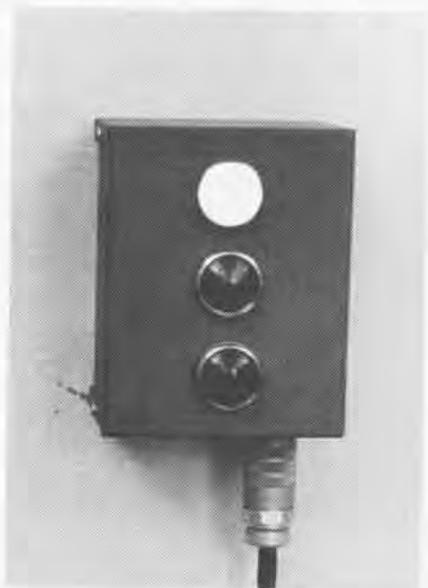
Such accomplishments may help indicate the personal involvement Op-563 people have in their work.

Cdr. Rose helps punctuate that involvement by discussing his own attitude toward his job: “When a major weapons system is designed, we have the continuing problem of forcing whoever is designing it to think in terms of training. It's comparatively easy these days to create a piece of complicated equipment, to have it built and to have it put in place, without a thought to training.

“Yet, without training, this sophisticated, exotic piece of equipment is worthless. There is a comment I have often made, so often it has become trite around here: ‘Remember, your planning is incomplete without operator training.’ It's trite, but it's still valid. I don't care what kind of system you build — if nobody can operate it, the system is no good.

“Without adequate training, we lose our effectiveness. This is where our biggest problem lies.”

Cdr. Rose declares pointedly his traffic light will stay on “red” as long as the problem still exists.



Izetta Winter Robb



Retires After Illustrious Career With The News



By Captain Paul Jayson

It will be inestimably different in the *Naval Aviation News*' offices next month: The deft editorial hand of Miss Izetta Winter Robb will be missing for the first time in more than 26 years.

Miss Robb, who has served since 1954 as Managing Editor, is retiring after a career that goes back almost 40 years. Since 1942, when she served in Navy Public Information as a *Wave*, Miss Robb has been close to *Naval Aviation News*.

Following graduation from the University of Minnesota, Miss Robb taught at her alma mater and at the American College for Women in Turkey. She served two stints with government agencies in Minnesota (including service as district supervisor for the Works Progress Administration Women's and Professional Projects Group).

During World War II she turned up in Washington as a *Wave* lieutenant (junior grade) serving as editor of the *Naval Aviation Confidential Bulletin*. In 1946 she stayed as a civilian to edit the *Bulletin*. In 1949 her name showed up in *Naval Aviation News* as "Squad-

ron Editor," forerunner of other editing jobs with the *News*.

When word of her impending retirement went out to former staffers of the *News* the disbelief was hard to hide.

Wrote one Navy man, retired Captain E. G. Colgan: "I was floored! I thought that Izetta was as enduring as the South Dakota carvings of the Presidents."

From Art Schoeni, who held the longest tenure of any military editor prior to going to work for LTV: "I vote against it. The old place won't be the same without her there as copilot."

Former Chief Journalist Joe Oglesby, now with the Civil Service Commission, wrote: "I have the highest admiration and respect for Izetta, matched only by equal sympathy for the survivors."

A former lieutenant, now editor of the NADA magazine, Dick Booth, wrote:

"Working with Izetta was like tak-

ing a combined course in the humanities and receiving practical instruction in the mechanics of putting together a magazine. She is a true professional in every sense of the word and Naval Aviation owes a deep debt to one of its most influential spokesmen."

Another Chief Journalist, John Burlage, who recently completed the Syracuse University's Photojournalist course after a 40-month tour on the *News*, wrote, "In 15 years of journalistic effort in and out of the Navy, I cannot recall ever working with a more knowledgeable person. She may be leaving the *News*, but her mark will be on the magazine as long as it is published. I can also say she has left her mark on me and my family, and we are the better for it."

Another former Naval Aviator, who in retirement acquired his Doctor of Philosophy degree, Dr. Robert Massey, said: "Of all the courses and programs I have been privileged to participate in, none do I value as highly as my three-year apprenticeship under the Master, Izetta Winter Robb."

By Izetta Winter Robb
and JOC James Johnston

*NC Crew Members,
Designers, Guests
Celebrate Golden
Anniversary of First
Trans-Atlantic Flight*

a
time

for reminiscing

Four and a half weeks after the NC-4, the first aircraft to cross the Atlantic, was put on display on the grounds of the Smithsonian Institution, Washington, D.C., in celebration of its 1919 flight, it was again disassembled and taken back to its haven at Silver Hill, Md. Resplendent in its restoration, it had been the occasion of awe for thousands of spectators who found it hard to believe that the big awkward flying boat was the very one that had triumphed over the rough-waved, cloud-covered Atlantic (*Naval Aviation News*, May 1969, pp. 6-36).

At the inauguration of the exhibit May 8, military and civilian leaders gathered to celebrate the 50th anniversary of its flight. Among those present were men who had helped design, build and fly the NC's: Dr. Jerome C. Hunsaker who, as a Navy commander, was one of the team which, with Curtiss Aeroplane and Motor Corporation, built the NC's; Mr. C. J. McCarthy, an ensign in 1919, later vice president of United Aircraft, who flew in the NC-1 as far as Trepassey; Captain Walter Diehl, USN (Ret.), a distinguished aeronautical engineer; and Dr. Theodore P. Wright, later a director of Cornell Aeronautical Laboratory.

The late Commander George C. Westervelt, engineer on the NC team, and the late Commander H. C. Richardson, who designed the NC hull and piloted the NC-3 with Commander John Towers, were represented by members of their families. Of the two surviving members of the NC-4 crew, Lt. Walter Hinton and Chief Machinist

Mate Eugene S. Rhoads, only Chief Rhoads was present. Lieutenant Commander A. C. Read was represented by his widow, Mrs. Parker Folsom, the daughter of one of the NC-4 pilots, Coast Guard Lt. Elmer F. Stone, was present. Ens. Herbert C. Rodd, the NC-4 radio operator, was represented by his daughter and grandson, the Gilbert family.

Crew members of the other NC flying boats also attended the ceremony: Captain Robert A. Lavender, radio operator of the NC-3, and Chief Machinist Mate Clarence I. Kesler, engineer for the NC-1. The NC-3's engineer, Boatswain Lloyd R. Moore, had flown from Peru for the occasion but became too ill to attend.

Representing the late Admiral John Towers were several members of his family — his widow, his son, his grandson and his granddaughter. NC-1's skipper, LCdr. Pat Bellinger, later Vice Admiral Bellinger, was represented by his widow, his son and two daughters.

Chief Warrant Machinist Rasmus Christensen, an NC-1 Reserve pilot, was represented by his son, Rear Admiral Ernest Christensen, the Chief of the Naval Air Technical Training Command in Memphis. The early pilot's grandson, Lt. Ernest Christensen, Jr., just back from two rugged combat tours in Vietnam, was prevented from attending because of his status as a *Blue Angel* with exhibition commitments. The Christensens are the first three-generation parlay of Naval Aviators in U.S. naval history.



OLD SHIPMATES Eugene S. Rhoads (left) and C. I. Kesler share a private moment in the crowd at the NC-4 50th anniversary ceremony. Rhoads was chief machinist on the NC-4 for the trans-Atlantic flight; Kesler served in the same capacity on the NC-1.

Under a sky that was at first bright and sunny and then threatened rain (but held off long enough for the event), these and other distinguished guests, many of them older than the NC-4, gathered for the occasion. After martial music by the Navy Band and the playing of the National Anthem, the ceremonies were opened by the Secretary of the Smithsonian Institution, the Honorable S. Dillon Ripley.

After pointing out the routine qualities of today's trans-Atlantic flights, he commented, "But only 50 years ago, such things seemed an impossible dream.

"In September of 1917, the U.S. Navy called together a group of its most expert naval constructors. . . . They were given what then appeared to be an impossible specification: design aircraft capable of delivery from the United States to the war zone, by air, under their own power. No aircraft then had ever crossed any ocean of the world.

"Rear Admiral David W. Taylor assembled his three key men: Commanders Jerome C. Hunsaker, G. C. Westervelt and Holden C. Richardson. Their mission was to design, build and fly a prototype capable of meeting the specification, the Navy-Curtiss No. 1 — the NC-1.

"By December 1917, their work had progressed to the point that the Secretary of the Navy, Josephus Daniels, authorized the construction of four flying boats of the NC-1 type. On paper, these appeared to the experts of the time as 'impossible aircraft.'

"And yet — as we all know — NC Seaplane Division One, comprising NC-1, NC-3 and NC-4, was ready to set out from Rockaway Beach, Long Island, just 50 years ago today, May 8, 1919. . . .

"We of the Smithsonian have had a part in the subsequent history of the NC-4. Thanks to the foresight and personal intervention of Paul Garber (who has served the Air and Space Museum for almost 50 years and has recently retired), the NC-4 was saved from the scrap heap and came, in part, into our custody in 1927. It was not until 1957, however, that all the components of the aircraft were brought



together at our preservation and restoration area at Silver Hill.

"Since that time, our shops have undertaken a complete restoration of the historic aircraft which you see before you. With the full cooperation of the Navy and many individuals who worked on the NC-4 50 years ago, we have assembled original specifications, original drawings and literally hundreds of photographs with which the restoration has been carried out in authentic detail. Incidentally, to our knowledge, this is the largest aircraft restoration ever attempted anywhere in the world."

Secretary Ripley then introduced Vice Admiral Thomas F. Connolly, Deputy Chief of Naval Operations (Air), who recounted the triumph of the NC-4:

"This large, awkward-looking collection of wings, wires, tail surfaces, tail braces and engines — all attached to a wooden hull — carried the first men across the Atlantic Ocean by air.

"This is the NC-4 — not the sleekest of aircraft. Someone recently com-

plained to the *Washington Post* that she 'uglifies' the mall. The man in charge of the first trans-Atlantic flight, Commander John Towers, said he thought the design 'rather queer.'

"But what is beauty? To aviators, successful performance is beautiful, particularly when the performance has never been done before. Paul Garber — whose own professional life is interwoven with that of the NC-4 — will argue convincingly that the NC-4 is beautiful. We might dispute its beauty, but not its performance or that of its courageous, determined crew. . . .

"This airplane — the NC-4 — was the first airplane of any nation to fly across any ocean.

"The flight of the NC-4 — N for Navy, C for Curtiss — was not unlike the voyage of Columbus or the moon trip by the astronauts, men reaching for a new horizon, doing something never done before. The NC's had to stay on course all night and, as it turned out, in poor weather in order not to miss the Azores. Islands can be hard to find without radio aids to navigation and radar, even islands as



SECRETARY OF NAVY John H. Chafee addresses guests at the celebration (left). On the honored guests' platform, Mrs. Albert C. Read, widow of the NC-4 commander, studies program, and S. Paul Johnston, director of the Air and Space Museum, accepts the NC-4 flight log. The Navy band played "The NC-4 March." Mrs. John H. Towers, widow of the commander of NC Seaplane Division One, talks to friend after ceremony.



large as those in the Azores. It was a precision task, one that required accurate calculations and performance. Without it failure or worse — if there is anything worse than failure — was certain.

"This week our British friends are celebrating the 1919 flight of Alcock and Brown from Newfoundland to Ireland. They flew across in June. The desire to be first was great and the competition was keen. But the Americans received a tumultuous welcome and congratulations in England when they arrived the last of May."

After describing the flight, its hazards and high moments of excitement, Admiral Connolly summed up the distance covered: "The NC flight plan called for a first leg of 540 miles from Rockaway to Halifax, then 460 nautical miles to Trepassy Bay, Newfoundland; the long flight, the third leg, from Newfoundland to the Azores was 1,300 nautical miles; then the fourth leg, 800 nautical miles to Lisbon, Portugal; and, last, a 775-mile leg to Plymouth, England: 3,875 nautical miles in all." Admiral Connolly further



pointed out that the NC-4 was delivered to the Navy five days before the flight and had had only some 30 minutes of flight time before heading to Newfoundland for the flight to Europe.

He spoke of exploring the interior of the NC-4 hull a few weeks earlier and said, "I found many things of great interest to any aviator or aviation-minded person. For someone who has flown the oceans in seaplanes, it was quite a surprise — so large yet so primitive, so uncomfortable and so lacking in instruments and equipment.

"I tried to picture what LCdr. Read must have done at his post in the bow during much of his flight. He was the plane commander but he was also the navigator. He had a little table and bench inside the hull where he could do his calculations and keep his logs. He would stand up in the bow to take a sextant sight or a drift reading, then duck down to do his office work.

"Wind blast at 75 mph is difficult but not unbearable. I don't know how things might have been in a driving rain, but I can guess. I pictured him leaning against the hatch coaming trying to get starsights or sunlines with his crude bubble sextant to be sure he was still headed for the Azores and not the South Atlantic.

"For most of 15 hours and 18 minutes on the leg to the Azores, he had been right on course. He spotted the searchlights and star shells of ships along the track. But by morning, May 17, with fog and clouds, he must have worried about missing his landfall. I can imagine a grin of satisfaction and relief as he sighted the westernmost island — Flores — while he peered down through the clouds from 3,400 feet. We can all feel his intense pleasure when he was able to order a descent to below the clouds to find Horta and land there.

"The pilots of the NC-4, Coast Guard Lt. Elmer Stone and Navy Ltjg. Walter Hinton, sat on the side-by-side cockpit bench in the hull, taking turns at the controls when the air was smooth, working together when it was rough.

"That morning, before reaching the Azores, they had righted the aircraft in



dense clouds when they realized that they were in a steep bank without knowing it. Instrument flying in the NC-4 meant flying almost without instruments.

"I can see the two men responsible for the engines, Lt. James L. Breese and Chief Machinist Mate Eugene Rhoads, peering from the afterhatch at the engines. I can picture Rhoads, wearing a safety harness, climbing out on the wing from time to time to make adjustments on his engines in flight. These two men were all-important to the NC-4.

"Engine failure was a number one concern. The four *Liberty* engines that powered the NC-4 were the best products of their time, each capable of 400 horsepower. But they needed tender loving care to keep running.

"Fuel flowed to the engines in a remarkable way. Gasoline was carried in large aluminum tanks inside the hull. Four wind-driven pumps pumped it from the hull to a tank in the upper wing. From there it flowed by gravity down fuel lines to each of the four engines. If these wind-driven pumps failed, the end was not necessarily at hand. A hand pump had been provided.

"Water to cool each engine circulated around the cylinders and through

a honeycomb radiator. An auxiliary tank was carried from which water could be pumped by hand. Sometimes that water came from the hull bilges.

"Ens. Herbert Rodd was the radio officer and the sixth crew member. His logs indicate that he was delighted with the long range of his new radio sets but completely frustrated because he could not talk to his crewmates on a new-fangled intercom. Ens. Rodd also used new radio direction-finding equipment with some success on the trip. The intercom problem was solved by written notes and hand signals.

"Captain Lavender, radio operator on the NC-3, reminds us that the first trans-Atlantic air mail was carried by the NC's: two letters — one to King George V of England and one to Queen Mary.

"After the NC-3 landed in the ocean, Commander Towers wondered whether their Majesties would ever get their air mail. After a never-say-die voyage of 209 miles on the water, driven by storm as well as engines, the NC-3 reached Ponta Delgada in the Azores. Towers turned the letters over to 'Putty' Read, and they were duly carried on by the NC-4.

"Commander Westervelt, one of the NC designers, writing after the flight in 1919, said: 'At Lisbon was written for



IN ARTS and Industries Building, Mrs. Bellinger, Mrs. Read, VAdm. Connolly and Adm. George S. Anderson discuss the NC-4. C. J. McCarthy, NC designer, attended.

all time . . . that first to cross the ocean by air was a ship whose every part was American, whose design and construction were American, whose men were of the American Navy and of American birth.'

'Westervelt concluded in a way I find appropriate today: 'And now [Alcock and Brown] have flown directly across from Newfoundland to the British Isles, rivalling the flight of those who were first to span the ocean through the air. And to them all honor is due while dedicated to history forever are Read and Stone and Hinton, Breese, Rodd and Rhoads — the men of the NC-4.'

'As you fly to Europe in seven or less hours, recall that Read and his crew spent 51 hours and 31 minutes in the air flying from Long Island to England. They started . . . the 8th of May, 1919. They reached Plymouth on the last day of May.'

'In his hour of triumph, Commander Read — even with the difficulties — felt that a great first step had been made. He said: 'Those who have assisted in the first ocean flight have, I hope, furthered the cause of aeronautical education, shown the efficiency of naval flying and aroused the public to further possibilities.'

'I have often wondered if Jules

Verne actually believed those marvels he prefigured in his tales or if it was just imagination with him. Certainly he often hit the nail on the head. Perhaps prophecies which seem amusing today may, like his visions, find a quick fulfillment. Perhaps we are not prophesying up to the future and require another Verne or Wells.'

'Are such words written in 1919 less applicable in 1969?'

The next speaker was the Honorable John H. Chafee, Secretary of the Navy, who spoke of the remarkable accomplishment of the men who conceived, built and flew the NC-4.

He went on to say, 'It was an unqualified first. . . . Yet it was far more than an impressive feat that those men accomplished in May 1919.

'A barrier was shattered forever. Imagination — and determination — had triumphed over the trackless ocean. And for the human spirit, the flight was a victory over doubt, hardship and the unknown.

'It also represented something else. It was among the first of the ingenious solutions to specific problems generated by the unique combination of talent, expertise, desire and hard work by a combination of Americans. That combination of both uniformed and

civilian Americans has become particularly known of late as a military-industrial complex.

'There are those today who would deride, degrade or destroy this complex. Perhaps it is well to remind ourselves how well it has served the nation. . . .

'We in the Navy are grateful to the Smithsonian for preserving the NC-4 for the future as an inspiration as to what can happen with an idea. . . . As Alfred North Whitehead once said, 'The vitality of thought is in adventure. *Ideas won't keep.* Something must be done about them. When the idea is new, its custodians have fervor, live for it, and, if need be, die for it.' "

The ceremonies concluded with the acceptance of the NC-4 log, originally in the possession of Rear Admiral Read, by the director of the National Air and Space Museum, S. Paul Johnston, on behalf of the Smithsonian Institution.

As the band played "The NC-4 March," written in 1919 by F. E. Bigelow and dedicated to LCdr. A. C. Read, the audience started away, but not before its members gazed thoughtfully at the refurbished NC-4 that half a century ago made the first flight across the Atlantic Ocean.



RECON missions follow a pattern (left to right): cameras put into plane, the launch, cameras at the target, the return to the aircraft carrier, rushing film to the lab, and, finally, photo interpretation.

600 seconds of

By JO1 L. C.

Time: Mid-morning. Place: North Vietnam. American jet aircraft, launched from a Task Force 77 attack carrier in the Gulf of Tonkin, streak in from the sea. One is a photo-reconnaissance plane. Guarded by two fighters, it sweeps in over the coast to the heart of the North Vietnam panhandle.

Down roads, along a river, crossing and recrossing a railroad with cameras whirring, the plane covers a predetermined area of countryside. Below, hidden in bunkers, in stands of trees and along river banks, antiaircraft gun-

ners attempt to down the jet.

Unscathed, the photo plane and its escorts turn back to the sea and home, USS *Hancock* (CVA-19). Time "over the beach" was ten minutes — 600 seconds.

Since the November 1 bombing halt, Seventh Fleet carriers have continued to launch reconnaissance flights over North Vietnam.

It takes hours to set up a recon mission. Task Force commanders must first determine which areas are to be covered. Then, this information is given to the pilots who spend as much

as two hours preparing for the flight, studying the charts to determine the best routes in and out. They must take into account weather, enemy defenses, possible escape and evasion measures in case they are shot down and alternate areas to photograph if the primary area is inaccessible.

Meanwhile, high-power, automatic aerial cameras are checked, rechecked and finally loaded in the camera compartments of specially configured F-8 *Crusaders* and RA-5C *Vigilantes*.

In addition to the photo plane and its fighter escorts, a reconnaissance



ver the NORTH

Carter Keck

mission requires other aircraft: Fighters are airborne over the sea in case of a MiG attack, SAR aircraft are on station, an E-1B *Willy Fudd* acts as a radar control aircraft, and an alternate photo plane orbits the carrier in case the primary plane is not able to complete the mission.

According to Lt. John Smith, a reconnaissance pilot in Light Photographic Squadron 63 (VFP-63) aboard *Hancock*, "Our best protection is speed. The other planes help, but speed is the main thing."

From launch to return, an average

reconnaissance flight takes about two hours. On their return to the carrier, reconnaissance aircraft must wait their turn in the ship's landing pattern if attack planes from combat missions over South Vietnam are ready to land.

Back aboard, the film is removed immediately from the aircraft, run through a rapid processing machine to be quickly previewed by air intelligence officers. While a positive print of the film is being made, pilots are debriefed.

"The human element is very important in reconnaissance. Pilots often see

something which is not recorded on film or are able to point something out in more detail, which may lead to further flights," Lt. Smith says.

Within hours after the film is received on board the carrier, reports are sent out to Task Force 77 commanders.

Lt. Bob Harrison, a VFP-63 pilot with 120 combat sorties, says, "Basically, we're trying to monitor the enemy's activities in the panhandle. When we went in before the bombing halt, it was pretty routine. Now, of course, we're the only planes they have to shoot at, so it's more exciting."

Flight Qualities and Performance

By Lt. D. E. Becker, USN

As the airspeed bled through 150 KIAS (knots indicated air speed) passing 45,000 feet in a 20° climb, the pilot pulled the stick full aft, applied full left rudder and held on as the Phantom snapped left, departed and gradually wound up in a flat spin.

The Harrier pilot checked outside his aircraft, ascended vertically to 200 feet and accelerated rapidly to near-sonic speed on the deck.

The OV-10A pilot held his brakes, applied full power on both engines, released brakes and, in 500 feet, was airborne in a maximum performance STOL takeoff.

As the big EA-6B touched down and taxied into the line, the first flight by a U.S. Navy test pilot in the Navy's newest aircraft was history.



One factor is the same for each of these events: Each pilot was a U.S. Navy test pilot from the Flying Qualities and Performance Branch (FQ&P) of the Flight Test Division, Naval Air Test Center (NATC), Patuxent River, Md. And it could have been the same pilot flying each aircraft.

I became a member of this small, elite group after completing eight months of the most difficult, challenging and rewarding instruction I have ever been through — at the U.S. Naval Test Pilot School. Graduates of this school are assigned to one of the three Test Divisions at NATC: Flight, Service or Weapons Systems. I welcomed my assignment to the flight test division and specifically to FQ&P.

The mission of FQ&P is to "evaluate the flying qualities and performance of experimental and production airplanes to determine service acceptability and specification or contract guarantee compliance." The branch normally has a staff of 12 pilots, with varying backgrounds, and 20 civilian aeronautical engineers. All projects are conducted by a team usually composed of one pilot and one engineer. They plan and execute all tests and report the results.

Exactly what is meant by FQ&P and what are the duties of Navy test pilots assigned there? Flying qualities refers to those aircraft characteristics that define how the plane flies and how it feels to the pilot. How does it handle during takeoffs and landings? Does it tend to cause pilot induced oscillations in the high-speed, low-altitude regime? How maneuverable is it? Does the onset of buffet occur at too low a G? Are the stick forces so high as to cause early pilot fatigue or so light as to cause easy over-stress?

How well does it trim out? What kind of instrument airplane is it? Does it have sufficient roll rate? Are there any adverse roll-pitch-yaw coupling characteristics?

If it is a fighter, how good a weapons platform is it? Is it stable and highly maneuverable for guns? Does it have sufficient capability to use air-to-air missiles effectively?

If it is an attack aircraft, how stable a platform is it for weapons delivery?



MIRAGE G, OV-10A and the tri-service X-22A VTOL have all been tested by FQ&P.

How much pilot attention is required just to fly the airplane? Is the pilot free to concentrate on navigation and weapons delivery, or must he spend most of his time fighting the unwieldy beast?

How stable is the aircraft, particularly in the transonic, supersonic and landing approach regimes? Does it exhibit transonic tuck characteristics, or does it lose directional stability and tend to swap ends in supersonic flight? What kind of stall and spin characteristics does it have? Is there sufficient stall warning to keep the novice pilot out of trouble? Can it be recovered from an unintentional spin? Does loss of an engine, on a multi-engine aircraft, create unusual hazards, particularly during the critical takeoff and landing phases?

Performance covers all aspects of the aircraft's ability to take off, climb, accelerate, dive, turn, cruise and land. If it is a STOL airplane, can it really take off and land in a very short distance without compromising safety? If it is a fighter, does it possess excellent acceleration, climb and turning characteristics? Can it really get out to high Mach in a reasonable amount of time, as the contractor guarantees? Is it really a significant improvement over the aircraft it will replace?

If it is an attack airplane, does it have excellent level flight range and



endurance characteristics? Does it have sufficient thrust to operate safely and effectively in a hostile anti-aircraft environment? How much ordnance can it safely carry and still have sufficient fuel for long-range missions? Can it defend itself or is a fighter escort mandatory?

These are just a few of the many questions answered by FQ&P pilots during testing of new and present aircraft. This process is best explained by following the series of events that occur when a proposed new aircraft is introduced into the Navy inventory.

Usually about 90 days after the first flight of a new Navy aircraft, a team of NATC pilots and engineers converges on the contractor's plant for the Navy's first real look at the new airplane. This team conducts a two-week Navy Preliminary Evaluation (NPE) to determine if there are any major deficiencies which will preclude accomplishment of the airplane's intended mission. Based upon this evaluation, and several similar evaluations in succeeding months, the Navy takes appropriate action to correct any deficiencies. For example, in the case of the OV-10A, five feet were added to each wing tip to improve its performance characteristics, including flight characteristics following an engine failure at low speed.

After the NPE is completed, the



F-111B AND HAWKER SIDDELEY HARRIER HAVE ALSO HAD THE FQ&P COURSE

contractor must demonstrate the performance, structural and spin characteristics of the aircraft. These demonstrations are flown by contractor pilots chased by an FQ&P pilot. The performance demonstration is just that: a demonstration of the aircraft's ability to meet the contractor-guaranteed performance. The structural demonstration proves that the aircraft will stay together throughout its entire flight envelope and includes testing beyond the normal structural limits. The spin demonstration proves the aircraft can be recovered from a spin.

Upon completion of all phases of the NPE and all contractor demonstrations (normally one to two years after the first flight), the aircraft is given its "final examination" for Navy acceptance. This is the Board of Inspection and Survey (BIS) Trials.

FQ&P conducts a complete and comprehensive evaluation of the flying qualities and performance of the aircraft to determine if any deficiencies still exist which would be a basis for non-acceptance by the Navy. Based on

this and similar evaluations of the engines, avionics and weapon systems by the other divisions of NATC, the Secretary of the Navy accepts or rejects the aircraft for Navy use. If accepted, it goes to the fleet and becomes a vital part of our national defense.

After BIS, the aircraft is still subjected to numerous evaluations by FQ&P test pilots. Normally, a technical evaluation of the airplane will follow. This evaluation generates much of the data that appears in the model NATOPS manual, including takeoff, climb, cruise, maneuvering and landing information.

A Navy evaluation of the spin characteristics of the aircraft may also be conducted during this period. This is one of the most interesting of all flight tests, and sometimes the most dangerous. Intentionally spinning a swept-wing supersonic fighter can be an exhilarating experience. Unfortunately, each year Navy planes and pilots are lost as a result of stall/spin accidents. The purpose of a spin evaluation is to learn the best techniques to

use in preventing and, if necessary, recovering from a spin. All spin evaluations are not completed. A recent evaluation of an F-4B ended abruptly when it could not be recovered from a flat spin. The test airplane was lost when pilot recovery attempts utilizing flight controls, drag chute and the "safety" anti-spin drag chute were ineffective.

In addition to the normal tests and evaluations of a new aircraft, FQ&P conducts numerous evaluations of new flight control systems and aircraft design concepts and any modifications to existing airplanes that could affect flying qualities or performance.

For example, before the Navy Flight Demonstration Team, the *Blue Angels*, began flying their latest aircraft, the F-4J *Phantom II*, the flight control system, modified for the intricate and unusual maneuvers performed by the *Blues*, was flight-tested by an FQ&P pilot.

FQ&P pilots also participate in many unusual and challenging test programs in aircraft not in the U.S. Navy inventory. These tests have included the French *Mirage G*, a variable geometry fighter; the British Hawker Siddeley *Harrier*, a V/STOL close-air-support airplane; and the X-22A VTOL.

I have tried to give a brief insight into the work of an FQ&P pilot. In the branch, I work daily with the best pilots and engineers in the business and with the very latest in flight testing equipment. Our purpose is to insure that the pilot, in the ultimate test, actual combat, has the best possible airplane with which to defend himself and his country.

The new F-14 and S-3 will be rolling off the assembly line in a matter of months. You can be sure that a test pilot from FQ&P will be anxiously waiting to leap into the cockpit to insure that these aircraft possess the flying qualities and performance necessary to fulfill the mission for which they were designed.

Flight testing of new and unusual airplanes is an exciting, challenging, sometimes frustrating, but always rewarding experience.

The Business of Survival

By JO2 James M. Missett

The Aero-Medical Branch of the service test division at NATC Patuxent River is working on 47 branch-initiated projects — ranging from determining the human factors in operating mobile liquid oxygen/nitrogen plants to testing the flight data recorder for the P-3 *Orion*. The branch also acts in an advisory capacity for 15 additional projects which include experimental balloon and air-to-air pickups of pilots.

Aero-Med's job is testing and evaluating equipment and aircraft for the Navy. Life support and escape systems, protective clothing and devices used in SAR are evaluated by the branch.

A rescue relay system is being developed to enable downed pilots to use satellites to transmit their positions to central rescue agencies. When the plan was originated, Aero-Med was advised that more powerful radios would be needed for such communication.

"But we just went ahead as if we didn't know anything about the limits of a small transmitter and bounced a signal off a satellite with just four-tenths of a watt of power," Dr. W. R. Crawford, branch head, said.

Another project under study is a device which will allow a pilot to eject from his plane and fly away in a secondary aircraft. Three varieties of a secondary craft are being studied: a gyro-copter, a para-wing lift and a deployable, solid wing aircraft.

To help eliminate design errors, Aero-Med recently began reviewing contractor blueprints, diagrams and schematics of new aircraft being built. While Aero-Med does not have authority to change designs, the branch can make suggestions. Most contractors are eager to receive these inputs.

The branch is now moving toward suggesting designs and equipment which will be needed in the future. Behind the suggestions are more than

20 years of experience which are being applied to improve flight conditions.

A test pilot school graduate is searching for a solution to the problem of too many inputs in the A-7 cockpit. According to Dr. Crawford, the cockpit, although fairly well designed, requires the pilot to read too many instruments.

Dr. K. F. Thomson, an engineering psychologist, is in charge of forming a human factors group which is concerned with cockpit design and instrument layout. He is studying ways to improve man's ability to look outside the aircraft into a brilliant sky, then back into the cockpit to a dimly lit blip on a display scope.



AERO-MED is working on a survival radio that may some day be used in a worldwide satellite network. Lt. M. N. Jackson (top) holds a transmitter similar to the type under study. HM2 J. V. Holloway (above, left) and HM2 C. C. Webster demonstrate the proper way to wear and breathe through oxygen masks in Aero-Med's high altitude chamber. Strip lighting material is being tested for use on aircraft flying in tight formations, here shown on an F-4 Phantom.



ON PATROL

with the Fleet Air Wings

The P-3C Orion is coming.

Patuxent River's VP-30 crewmen began training in the P-3C in May at the Lockheed-California Company in Burbank, and last month the squadron received three of the new patrol planes. VP-30 is the East Coast replacement squadron.

In September, VP-56, also based at Patuxent, is scheduled to become the first all-P-3C operational squadron in the Navy. VP-56 flight technicians began training for the P-3C in June at Burbank. Eventually, all the flying and maintenance crews will attend schools, including computer schools, in the Patuxent River area.

The squadron changed from P-2 Neptunes to P-3 Orions in 1968. Formerly based at Norfolk, VP-56 moved to Patuxent River in June 1968 and completed transition to Orions last December.

Although the exterior of the P-3C remains essentially unchanged from that of the A and B models, the interior has been completely reorganized to take advantage of a new airborne digital computer which integrates improved navigation, sensor and armament systems. The A-NEW avionics ASW system optimizes the use of contemporary ASW techniques and equipment.

The P-3C Orions will carry ten-man crews — two less than the A and B models, but with officer strength increased — who will be able to devote 85 percent of their time to tactics. In the earlier models, approximately that much time was spent in data handling. The A-NEW computer system frees the crew for the more important task of tactics, which should increase significantly the kill/detection ratio in anti-submarine warfare.

For visual identification of surface objects at night, a low-light-level television system in the P-3C replaces the

searchlights used on the P-3A and P-3B. The closed-circuit system can detect surfaced submarines and other vessels in almost complete darkness.

Additionally, a new reconnaissance camera is installed in the nose of the P-3C to supplement the existing camera in the aft fuselage. The new camera provides photo capability at vertical, oblique and forward angles.

Navigation and communications, which require both a navigator and radio operator in the A and B models, is performed by one man in the P-3C, since the computer relieves the crewman of routine functions previously done manually.

A new sonobuoy launcher system, integrated with the data processing systems, has been installed. It will enable the plane to carry a great variety of search stores and to select, program and fire automatically.

The workload required to perform the ASW mission has been analyzed

and assigned to crewmen or to the A-NEW computer with automation stressed in those jobs most likely to involve human error, such as rapid calculation recall.

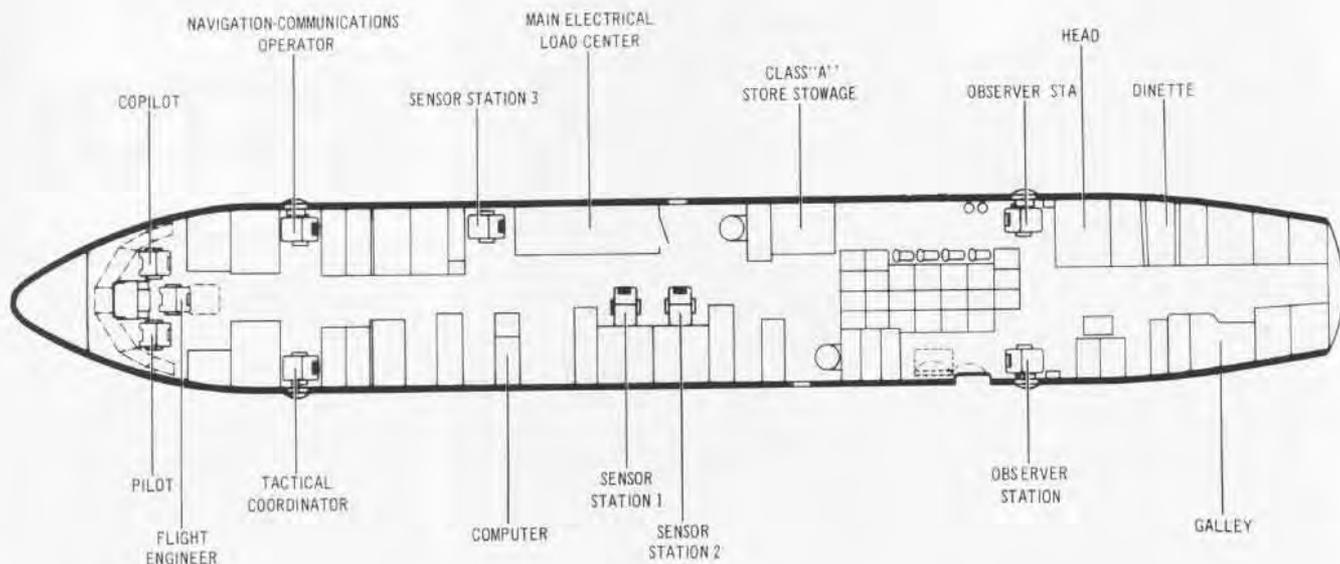
In addition to systems development and design refinements, the P-3C cabin and interior arrangement are configured for maximum crew productivity during patrol missions, often lasting more than 12 hours. The cabin is pressurized and air-conditioned; proper lighting and noise control have been provided. The comfortable crew seats will minimize fatigue.

The after cabin area is designed as a crew rest area with bunks, a dinette and cooking facilities. The entire cabin interior is more spacious than in the A and B models. Equipment relocation provides additional stand-up and walk-through space.

The entire package is designed to cope with the growing menace of unfriendly submarines.



P-3C ORION



THE P-3C prototype is shown in flight at left. Above, a schematic drawing of the P-3C interior shows the crew stations. The new model will have a ten-man crew, instead of the twelve in the B model, but will carry more officers. At left, an Orion pilot sits in the P-3C cockpit and, above, prospective P-3C crewmen listen attentively to a plant representative at Lockheed-Burbank in California.

Harrier V/STOL



The Harrier V/STOL hovers (left) a few feet above the ground. Above is one of the maneuvering jets in the tail section. At right, a Harrier takes off vertically in a demonstration of its varied capabilities.



The British Embassy recently hosted a demonstration of the *Harrier V*/STOL jet at Andrews AFB, Washington, D.C., to announce the plane's operational entry into the Royal Air Force.

During the next fiscal year, the U.S. Marine Corps plans to order 12 of the ground attack and tactical reconnaissance planes built by Hawker Siddeley Aviation, Ltd., of England.

Vertical takeoff and landing planes are not new. In August 1954, the Convair XFY-1 *Pogo*, a delta-wing experimental fighter, made the first free vertical takeoff in history at NAS Moffett Field. Test pilot J. F. Coleman lifted the plane 20 feet into the air and then gently touched down. In November 1954, the first transition from vertical to horizontal flight was made. The program terminated in December 1956 because of difficulty with the T-40 engine and emphasis on jet power.

The Bell ATV (Air Test Vehicle), tested in 1954, is acclaimed as the first jet V/STOL to fly.

The *Harrier* has been a decade in production and testing. Powered by a Rolls-Royce Bristol *Pegasus* vectored-thrust engine, the jet flies at near Mach 1 speeds. It has a 19,200-pound thrust and a maximum ferry range of 2,000 nautical miles without aerial replenishment.

On its seven weapon stations, the *Harrier* can carry a 6,000-pound load of air-to-surface missiles, bombs, flares, rockets, torpedoes and 30-millimeter cannon.

Operationally, the plane is ideally suited to areas like Vietnam. Because of its vertical and short take-off capability, the *Harrier* requires a maximum of 300 yards for operation and can take off from grass, roadways or other natural areas, thus eliminating the necessity for SATS fields.

Two British pilots demonstrated the versatility of the *Harrier* in both vertical and short takeoffs. Fully armed, the plane cannot lift off vertically, but it can do so with a short run in the space of about three plane lengths. It can hover like a helicopter, turn a full 360 degrees without moving forward or backward, then speed off at low-level, subsonic speeds, take a tight turn and come to a hover position for a vertical landing in seconds.





SELECTED

Exercise 'Trilant'

Eleven members of VP-68A2, NARTU Washington, D.C., joined forces with the Portuguese Air Force and the Spanish Navy in a one-week NATO exercise in the Atlantic Ocean west of Portugal.

The Reserve unit and the Portuguese Air Force flew P-2 *Neptunes* and the Spanish Navy provided a carrier-based helicopter squadron for Exercise *Trilant*. The combined forces flew 11 hours of antisubmarine patrols each day, seeking out "enemy" submarines provided by the U.S. Navy.

Training Flight?

When Commanders H. W. Michie and R. E. Trandem and ATN2 P. D. Barnes, all members of HS-5E3 at NAS Twin Cities, took to the air, they thought they were just going on a local training flight. But it turned out a little differently.

Looking down on the countryside, the crew noticed a car travelling at high speed (later reports indicated 115 mph) with a police car in pursuit. Suddenly the car turned into a wooded area; its lights were turned off. The police sped right by.

Cdr. Michie radioed the naval air station, informed them of what had happened and asked them to contact the Highway Patrol. Then he and his crew turned on their landing lights and circled the hidden car until the police arrived.

Second Annual 'Wash-In'

When the students of Fort Hunt High School, Alexandria, Va., held a "wash-in" last year as their answer to student unrest, they had such a good time, they decided to do it again.

This year, 74 students, members of

the Hi-Y and Tri-Hi-Y clubs of the school, turned to at NARTU Washington, D.C., to express their support of the Navy. In working clothes and tennis shoes, the youngsters scrubbed down two F-8 *Crusaders* and a T-34 *Mentor*.

Although some of the students caught as much water as the planes, the job was completed in time for them to enjoy dinner in the mess hall.

Employers' Day

NARTU Alameda recently completed a program aimed at showing the employers of Naval Air Reservists why it is so vital to the Reserve mission that their employees attend regular drill weekends and two weeks active duty for training.

Captain A. T. Ditmyer, NARTU commanding officer, scheduled an Employers' Day for each of the four drill weekends of the month. The guests were welcomed by the squadron C.O.'s



FIVE-YEAR-OLD Bill Schofield shakes hands with South Weymouth's Sailor of the Year, ADR1 Jacob R. Lewis, after giving him a Paul Revere bowl. Bill was assisted by Elmer Coles of the Navy League's Southeast Council, sponsor of the award.

who explained the Reserve goals. Then they toured the Link and ASW trainers, hangar spaces, control tower and Fleet Weather Central and were shown the various types of aircraft used by the NARTU squadrons.

Highlight of each day was the air show. An SH-3A *Sea King* showed off the helo's capabilities, including autorotational landings, low-level passes and sonar. An A-4B demonstrated mirror and arrested landings and in-flight refueling.

The 1969 Employers' Day was a great success and plans are already being made for a repeat performance next year. The goal is to "enlist" every employer for a day as part of the Selected Air Reserve.

First Reserve Aircrew Wave

After two years of trying, Mrs. Clementine McDonald has become the first Wave to achieve aircrewman rating in the Naval Air Training Command, according to a NARTU Jacksonville release. In a recent ceremony, Captain Berton R. Otto, NARTU C.O., presented Tina her aircrew wings and designated her a flight attendant for C-118's.

The pert, dark-haired grandmother of two is a civilian employee and Weekend Warrior at Jacksonville. Tina is employed as a log yeoman in the NARTU's aircraft maintenance department where she maintains logs for 40 aircraft. She attends monthly drills as a member of VR-24F1.

The new aircrewman enlisted in the Waves in 1944. In 1948 she went to work at the Jacksonville Naval Air Rework Facility and joined the Naval Air Reserve. Tina became interested in flying while employed at the facility "accepting sick aircraft for overhaul and transferring renewed ones back to the operating forces.

AIR RESERVE

"It taught me a lot about aircraft," she says. "Being a flight attendant means more than serving food and coffee during flights. You have to compute cargo weights, determine fuel requirements, manage passenger and cargo manifests and know all the NATOPS procedures."

The male crewmen in the squadron welcome the woman's touch on their flights. Tina, who dislikes box lunches and TV dinners, dishes out hot meals in typical grandmother style.

One Hundred Percent

When Rear Admiral William S. Guest, Chief of Naval Air Reserve Training/Commander Naval Air Reserve Forces, visited NARTU Alameda, Calif. recently, he swore in James Welch, the NARTU's 96th Aviation Officer Candidate of 1969. With the swearing in of Welch, Alameda reached 100 percent of its AOC quota.

Sailor of the Year

Petty Officer First Class Ross P. Schweikert has been selected as NAS Twin Cities' Outstanding Enlisted Man for 1968. At the station's annual military personnel inspection in May, he received the Navy League's McCahill Award which is presented annually to the petty officer who has contributed the most to the morale and efficiency of NAS Twin Cities.

In addition to his work as a disbursing clerk, he was instrumental in reforming and maintaining the station's Honor Guard which participates in community functions and parades and serves as a funeral detail at military funerals in the upper Midwest.

Schweikert joined the Navy in 1945 and in 1952 became a member of the Organized Reserve. He joined the TAR program in 1955 at Lakehurst, N.J.



TWO YELLOW SHIRTS watch as pilots and aircrewmembers of Helicopter Air Antisubmarine Squadron 70S1, Norfolk, complete the first carrier qualifications under the new force-in-being concept of the Naval Air Reserve. HS-70S1 completed the carquals 50 nautical miles out in the Atlantic on the USS Austin (LPD-4). The qualifications were necessary in order that the unit might participate in ResPhibASWEx 1-69, a reserve surface and air exercise.



at Sea with the Carriers

ATLANTIC FLEET

Shangri La (CVA-38)

As *Shangri La* steamed in the Med with ships, aircraft and landing forces from five NATO countries, Admiral Horacio Rivero, Commander in Chief, Southern Forces Europe, and Vice Admiral Gert Jeschonnek, Chief of Staff of the Federal German Navy, landed aboard to observe Exercise *Dawn Patrol*. Uninvited guests who watched the exercise were two Egyptian *Badgers* and a Soviet guided missile destroyer.

Chaplains on the carrier have set up gallon jars in several locations in which the crew can deposit their "mad money." This particular money is the loose change that remains in the men's

pockets after liberty in one of the Med ports. Each man doesn't contribute much, but added together, the money will make a tidy sum which will be converted to American dollars and donated to church charities when the ship returns to the States.

Lexington (CVT-16)

Ens. M. Gregson, VT-28, made Lex's 241,000th arrested landing in her 26 years of operations. The carrier will enter the Boston Naval Shipyard this month for an overhaul period.

Independence (CVA-62)

Before *Independence* went on her sea trials, carrier personnel held an open house for employees of the Norfolk Naval Shipyard who had

worked on her during the two-month yard period.

Vice Admiral Robert L. Townsend, Commander Naval Air Force, U.S. Atlantic Fleet, came aboard for a post-yard-period look at the ship which was moored at the Norfolk Naval Base. *Independence*, commanded by Captain H. S. Matthews, Jr., was loading cargo after three days of successful sea trials.

Forrestal (CVA-59)

Cloudy skies and showers failed to dampen the spirits of the families, friends and dignitaries on hand to greet the 4,300 officers and men of *Forrestal* as they brought their ship into Norfolk after a nine-month deployment to the Med.

Under the command of Captain

PORTSMOUTH BECAME A BIT CROWDED WHEN AMERICA, ROOSEVELT AND INDEPENDENCE UNDERWENT OVERHAUL



James W. Nance, the carrier participated in numerous Sixth Fleet exercises while CVW-17 logged 14,000 catapult launches and arrested landings. The ship steamed 78,348 miles, visiting 12 ports from Barcelona, Spain, to Istanbul, Turkey.

But before she left the Med, 293 men earned their "crows" in the semi-annual, Navy-wide, advancement-in-rating exams.

America (CVA-66)

In a ceremony aboard *America* as she was moored at Portsmouth, Va., Rear Admiral Jack M. James relieved Rear Admiral Leroy V. Swanson as Commander, Carrier Division Two. RAdm. Swanson will report as Chief of Staff, Commander in Chief, U.S. Naval Forces Europe. RAdm. James' last assignment was as Director, Aviation Programs Division, in the Office of the Chief of Naval Operations.

Capt. R. E. Rumble is *America's* C.O.

J. F. Kennedy (CVA-67)

When the Honorable John W. Warner, Under Secretary of the Navy, visited the *Kennedy*, he gained some firsthand knowledge of carrier avia-

tion from VF-32. Before a flight in one of the squadrons F-4B's, he was checked out in the ejection seat and Mark 5 anti-exposure suit. Then, strapped in the rear seat of the *Phantom*, Mr. Warner rode the aircraft through a cat shot, supersonic flight, inflight refueling and a carrier arrested landing. Pilot for his introduction to modern jet carrier aviation was LCdr. Preston Lineberger.

Mr. Warner, Admiral Thomas H. Moorer, Chief of Naval Operations, and Vice Admiral R. L. Townsend were the guests of Rear Admiral L. V. Swanson, ComCarDiv Two.

The *JFK* is currently in the Med.

Boxer (LPH-4)

Vice Admiral John M. Lee relieved Vice Admiral Andrew Jackson, Jr., as Naval Representative to the U.S. Military Delegation, United Nations Military Staff Committee, in ceremonies aboard *Boxer* in New York City.

In an earlier change-of-command ceremony, Captain Lester B. Lampman relieved Captain Robert F. Hunt as commanding officer. Vice Admiral Luther C. Heinz, Commander Amphibious Forces, Atlantic, was among the guests.

PACIFIC FLEET

Kitty Hawk (CVA-63)

CVA-63 celebrated her eighth birthday on station in the Tonkin Gulf, her fourth combat cruise of the Vietnam war. When Captain J. F. Davis cut the traditional cake, he gave the first piece to the only plank owner still on board, GMI B. G. Lyon.

When they returned from a mission over South Vietnam, Ltjg. P. E. Mills and the RIO, Lt. E. L. Fisher, VF-213, logged landing #95,000 in an F-4.

Bon Homme Richard (CVA-31)

In a brief change-of-command ceremony on the flight deck while *Bonnie Dick* steamed in the Tonkin Gulf, Rear Admiral Roy M. Isaman relieved Rear Admiral Frederic A. Bardshar as ComCarDiv Seven.

Saratoga (CVA-60)

Having completed an extensive yard period at the Philadelphia Naval Shipyard, *Sara* recently ended a shakedown cruise in the Caribbean. In April, *Saratoga* celebrated her 13th birthday.

Tico Celebrates Her 25th Birthday



Ticonderoga (CVA-14), the carrier that launched the first strike against Vietnam, celebrated her 25th birthday as she steamed in the Tonkin Gulf on her fifth combat deployment of the Vietnam war. Coinciding with the birthday celebration, Lt. Thomas L. Garrett, VF-111, brought an F-8 *Crusader* in for the ship's 125,000th landing since the ship was recommissioned in 1954. *Tico's* first landing after her shipyard conversion was made by Lt. J. N. Malnerich, VA-25, in January 1955. Captain R. E. Fowler, Jr., is the current commanding officer.



USS INDEPENDENCE

Jet Power Plant Shop

By JOC Ken Ledbetter



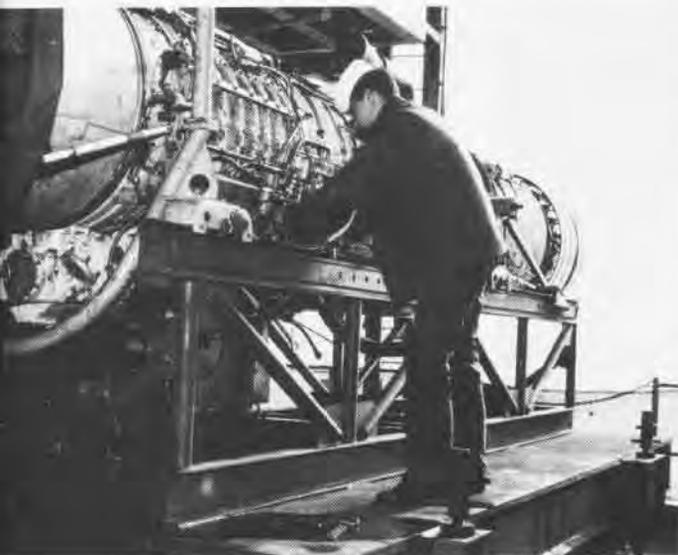
GREASE-STAINED hands of a mechanic (above) smooth threads of a stubborn bolt in the power plant. Below, ADJ3 Al Murray of RVAH-7 attaches test cell connections to a J-79.



As the bow of the darkened carrier USS *Independence* knifes the evening waters in the Mediterranean, the stillness is broken by the piercing roar of jet aircraft beginning night operations. Sailors on a rescue destroyer watch as jet after jet soars into the darkened sky like flaming rockets.

Back of this pyrotechnical display of airborne jets are the carrier's shops that keep some 80 aircraft operational. These facilities are more extensively equipped than seems possible aboard a ship. Squadron mechanics nurse the planes with constant checks and routine maintenance, but they also rely heavily on such specialized facilities as the power plant shop (PPS).

The 20 jet mechanics in PPS are supervised by ADCS Joseph L. Mc-



ADCS Joseph L. McGlaulin inspects a new rotor blade assembly (top) while, on the outside platform, ADJ3 Gary M. Calcaterra connects test cell. Airmen check jet engine and signal test booth (right).



Glaulin who has more than 23 years experience on both jet and reciprocating engines. Blending compressor blades, replacing turbine assemblies, repairing fuel pumping components, fixing fuel tank cells and testing assembled engines consume most of the shop's man-hours.

About 12 times monthly, PPS receives a jet engine requiring replacement or extensive repairs beyond squadron capabilities. The shop specializes in jet engines, doing everything except major overhauls. It also provides test facilities for five different models of engines used by the squadrons' aircraft.

Most of the shop's floor space is occupied by five long work stands for assembly and disassembly of large en-

gines. Each stand holds two engines, and they are usually occupied. The crew must always have one engine for each aircraft on the stands, completely tested and ready to go. The five remaining work spaces are used for limited repairs.

The engine in the shop most frequently is the 6,000-pound J-79 engine, because this is the type most frequently flown from *Independence*. The J-79 comes from the factory sealed in a heavy, steel, pressurized container. Unpacking a new engine, testing and readying it for installation require more than 100 man-hours.

Heavy engines are moved easily around the shop by an overhead track hoist capable of placing them anywhere in the working area. Once re-

pairs are made and the engine is ready for its final tune-up, it is hoisted on a portable stand and rolled to a testing area on the carrier's fantail.

Located 15 feet from the test stand, where the jet engine is mounted, is a small test cell operator's soundproof booth. Looking through a six-inch shatterproof window, the observer can watch the engine closely during its 40-minute test run.

Following the test run and after the engine has cooled, it is placed on a portable stand ready for reinstallation.

The power plant shop's determination to "fix them right and fix them fast" kept *Independence* aircraft operational for 24,500 takeoffs and landings made during nine months while steaming 57,000 miles in the Med.

Editor's Corner

BARK OF THE MOON

Many brave men and women have won recognition in aviation in America, more recently in our space program. Many of these outstanding aviators have been inventors, many explorers, many daring pilots, and many military personnel whose sacrifices and foresight have been in pursuit of peace, not war. All of them have played a major role in bringing the world and its peoples closer together with greater freedom than ever before in history and with a higher degree of communication than ever before possible.

But, of course, the men and women of aviation haven't been the only people working for and building a better world. There have been great statesmen, leaders in business and commerce, scientists, humanitarians and — let us not forget — those in the arts, artists and writers. "The pen is mightier than the sword" — those immortal words are worth repeating today.

For you, Mr. Schulz, have given us a lighthearted, but deeply meaningful, daily reminder through "Snoopy" of the good inherent in us all. As pointed out 2,000 years ago, a prerequisite of greatness is that the hearts and minds of men must remain as meek as those of little children.

In honor of that spirit, it is a great privilege to award you these gold wings for Snoopy. We hope he will always wear them with pride.

With these words, the Blue Angels leader, Commander Bill Wheat, presented Charles Schulz, the creator of the popular comic strip, "Peanuts," with Navy wings of gold for the battling Beagle (NA News, June 1969, p. 30).

Dogdom's daredevil was unable to attend owing to a prior commitment to fly to the moon, but he was



R/C CRATE BY McDONNELL-DOUGLAS

effectively represented by a radio-controlled flying replica of his doghouse. Said one bystander, "It's a crime to send a dog up in a crate like that."

Best of its Class. Although it is not as large as the Los Angeles International, nor as busy as O'Hare in Chicago, the "USS Okinawa International Airport" is definitely the best of its class. There is no freeway or expressway leading to "Oki International," for it is located just a few miles from beautiful downtown Da Nang.

There is no waiting in line for reservations; you need only check in with Helicopter Direction Center the night before your flight for a manifest ticket. All flights, round trip or one-way, are paid by everyone's favorite *Uncle*. Accommodations are the same for everyone — Military (not military standby, just military).

The ground crew is experienced; some employees have been with "the company" for the last six years, and

some even longer. Oki International is serviced by several different airlines, but most aircraft belong to one large parent corporation, the U.S. Marine Corps. Some passengers are fortunate enough to be able to select the aircraft in which they will fly; however, most passengers fly in the UH-34 model which accommodates five passengers, one crew chief, one copilot and one pilot-in-command.

All passengers quickly become familiar with the safety features of the UH-34 as these are pointed out by the crew chief who acts as "senior stewardess." There is no stereo system and no color movie, but these omissions are not noticed by most passengers on the short flight.

There is no Rent-a-Car available at the end of the flight, but your favorite *Uncle* has made sure that transportation will be provided for all passengers at no extra-cost — jeep, tank, water buffalo or sampan.

If your flight is delayed (which is not probable), there is no reason to be concerned, because Oki International has made arrangements for *your complete comfort while you await your next flight*. Inside the spacious complex of "Oki International," you will find numerous dining areas, very adequate banking facilities, laundry equipment and one of the most futuristic shopping centers in WestPac. In the center are an ice cream parlor, coffee shops, barber shop, a well stocked library and a wide-screen cinema for nightly premieres. The "airport" provides an extremely modern medical center with surgeons and hospital technicians, second to none. An up-to-date and comprehensive coverage of all current events is available in the daily and monthly newspaper.

Being near the sea, Oki International has a spectacular view overlooking the Pacific Ocean where neither a sunrise nor a sunset is overlooked.

The Chairman of the Board and Chief Coordinator of all traffic at Oki International is Captain William A. Mackey.

"Is this any way to run an airline?" You bet your life it is.

—By Ltjg. E. A. Maxwell and
RD3 Rick Amos

LETTERS

AX Rating

With regard to your March 1969 issue of *Naval Aviation News*, page 14 and the inside back cover, I wonder if you have information concerning the AX rating that the fleet and Memphis does not have; namely, is AX no longer going to be a functioning Group IX rating?

G. E. Rojan, AXCS
NAS Memphis

¶When the March issue went to press, our sources indicated that the AX rating would, indeed, be disestablished. Since that date, an OpNav memorandum dated February 4, 1969, says the Navy will retain the AX rate. However, to quote from the memo in part: "A review of the criteria for Navy ratings set forth on page 13 of the Manual of Qualifications for Advancement... indicated that the AX rating continues to meet all the established standards for a separate rating, with the possible exception of one. By plan, and because of the impact of the compensatory reduction in AX billets required to support the establishment of the AW rating which, in turn, created a surplus of personnel in the AX rating, no inputs have been made into the AX(A) school or into the AX rating from the fundamental graduate program since 1 July 1968. No change is contemplated in this plan until the AX rating is manned at, or near, stated billet requirements."

Further, there are no plans for re-opening the AX(A) school in the future. Rather, a consolidated (A) school has been established to train men in the basic knowledge of avionics required for the ATN, ATR, AX, AQB and AQF ratings. Graduates of the avionics course will be programmed into the above ratings as required to meet current manning levels.

Looking Back

Many thanks to you for the fine coverage of the *Able Dog*. It was particularly significant to me that you remembered the "back seat boys" as I was one of them. I started flying the AD in 1948 while assigned to VCN-1 and later to FAWTUPac. Incidentally, VCN-1/FAWTUPac was one of Vice Admiral P. H. Ramsey's old outfits. Later, I was a plank owner in VC-3.

You can imagine my surprise and the resultant flood of nostalgia when I viewed the picture printed on page 39 of the November 1968 issue of *NANews*. That "salt" standing on the wing of old NP-54 was I! Needless to say, it was quite a thrill to be the crewman on that particular flight. Enlisted men seldom meet the Secretary of the Navy, let alone fly in the confines of a carrier aircraft with him.

It might be of some interest to you that my pilot (Lt. Bob Fitzgerald) and I were taking SecNav Mathews to a meeting with

Syngman Rhee at Seoul. The gentleman shaking hands with Secretary Mathews was Rear Admiral Ewen. The other man with his back to the camera was the CAG-11 skipper, Commander Tex O'Neil. Lt. Fitzgerald's profile just appears on the right side of the photograph. I remember that the Secretary was very much impressed with the cat shot we received on takeoff. Also, the aircraft was an AD-3NL not an AD-4N as you mentioned in the caption.

Thanks again for your fine magazine. Over the years, it has provided much information and pleasure.

L. E. Osborne, Lt.
Patrol Squadron Four

'Fanning the Flames?'

In the world of Naval Aviation, certain internal conflicts occur. Chief among these is the fighter-attack pilot rivalry — an historical contest of serious import, a competition frequently producing many verbal casualties. Can it be that the editorial staff of *Naval Aviation News* was unaware it was fanning the flames which leap from this age-old contention?

The article entitled "VA-124 Fighter Weapons School" on page 3 in the April issue has caused us extreme anguish, especially by the amount of "gas" received from that other squadron — Brand X (Interceptor Squadron 121). As a veteran fighter pilot assigned to VF-124, the "Last of the Gunfighters," an organization staffed by the rarest and most aggressive breed of Naval Aviators in the world, I am duty bound to correct this error now. The article should have been entitled, "VF-124 Fighter Weapons School."

"The Gunfighters of Fighting 124," however, extend sincere congratulations to the entire staff of *Naval Aviation News* for the excellence of your fine publication.

H. J. Post, Commander
VF-124 Commanding Officer

Correction

In the March issue of *NANews*, p. 14, the article on the training cycle of Group IX rates states that the Aviation Antisubmarine Warfare Operator (AW) receives training in the Avionics Fundamentals School, but this is not so.

The AW training cycle starts with the Aviation Fundamentals School, Class P, followed by the AW(A) course for 15.9 weeks. During the AW(A) course, the trainee receives, as outlined in the Formal Schools Catalog, CNATra P-1550/1 (Rev 1-69), training in electrical/electronic fundamentals, organizational level maintenance and ASW equipment trouble analysis as well as the operational fundamentals of ASW.

O. D. Brown, Lt.

More Connie Info Needed

About three years ago, I asked your readers to assist me in a research project on *Connies*. The response was gratifying as well as helpful.

I am still working on the project which will culminate in a detailed history of the Lockheed *Constellation* to be published in the Journal of the American Aviation Historical Society.

I have a number of loose ends to tie up before the history can be completed. I still need historical data, newspaper and magazine clippings or articles, engineering studies/reports, personal recollections, etc., concerning *Connies* used by the Navy. Especially do I need photos of the R7V-1's, used by VR-7 and VR-8 on the Pacific runs in the 50's, and the pilot's handbook on any variant of Navy *Connies*. Can anyone provide me the BuNo's and/or photos of the *Blue Eagle* C-121J's used for TV broadcasting in Vietnam?

Any help that *NANews* readers can give me will be greatly appreciated.

John T. Wible, SSgt., USAF
430 West Main Street
Lebanon, Ill. 62254

Aircraft Data Sought

My research dealing with the development of Grumman's attack and ASW aircraft is progressing smoothly, but I still need information on carrier trials and squadrons which have operated the AF-2 series of ASW aircraft. I also require information on early S-2 operations. If any *NANews* readers can help me, I would appreciate it very much.

Kurt H. Miska
749 Preston Road
East Meadow
Long Island, N.Y. 11554

The Way It Was

On page 36 of the February 1969 issue of *NANews* under the heading *Wasp* (CVS-18), it states that *Lawson's Losers* were on board with the first A-4's for *Wasp*.

On the contrary, an A-4 *Skyhawk* detachment (VA-64 Det. 18B) operated from *Wasp* from January-June 1962 during an exciting people-to-people cruise to the North Atlantic. Commander Ed Herbert was officer-in-charge of the *Black Lancer* detachment which normally operated with CVW-6 from NAS Oceana and on board *Enterprise* (CVAN-65). We had four A-4B's, six pilots and 53 maintenance personnel in the detachment, including Mr. Len Gray, our Douglas technical representative.

I remember it as a great cruise and a fine CVS.

J. F. Roth, LCdr.
Naval Plant Representative Office
Grumman Aircraft Engineering Corporation

LETTERS

Award Presentation Delayed

The Atlantic Fleet Combat Camera Group regrets the long delay in presenting *NA-News*' 1968 photographic award to Petty Officer William Curtsinger, but this is the first opportunity we have had to make the presentation. PH2 Curtsinger has just returned from seven months temporary duty with Naval Support Forces, Antarctica, and all indications are that he has produced another outstanding collection of photographs for the Navy.

This command is most appreciative of your decision to make a special award to Petty Officer Curtsinger. These awards, from activities such as yours, assist in a great way to provide recognition for a job well done and inspire others to provide photography worthy of special note.

W. J. Collins, LCdr.

¶ The cover opposite is a montage consisting of the presentation to PH2 Curtsinger by LCdr. Collins of the special prize for color photography, the cover of the magazine displaying the winning picture, and the plaque.

Whoops!

In *Naval Aviation News*, April 1969, page 35, mistakes are made in the story on the *Intrepid*. We operated as a light CVA, not as a CVS. Instead of having CVSG-10 aboard, we had CVW-10.

We also crossed the equator four times, not three.

AN Lawrence O. Bolyard
USS *Intrepid*, CVS-11

¶ Agreed! *Intrepid*, CVS-11, operated as a CVA with CVW-10 aboard. We don't know about the crossings of the equator, but it seems logical that if you cross it going away, you must also cross it coming back.

A Royal Navy Salute

Congratulations on the restoration of the NC-4 and its effective presentation to the public.

We in the United Kingdom have recently recalled our own efforts with the Vickers Vimy, and I have had occasion to remind my family of the NC-4 and the remarkable planning of the U.S. Navy.

As a student of naval aircraft engineering at our Naval Engineering College in Plymouth, we were taught about the arrival of the NC-4. I remember delivering a class presentation on the flying boat, which took, as its starting point, the arrival of the NC-4 in Plymouth and how it showed up our Felixstowe boats.

The NC-4 made my week in your na-

tion's capital, and I shall give your excellent souvenir brochure to my children. The NC-4 flight was one of the earliest but most memorable exploits of Naval Aviation.

Anthony C. Cowin, LCdr.,
Late Engineering Officer of
815,705 and 848 Squadrons
Fleet Air Arm, Royal Navy

Naval Aviation Films

The following motion picture films are among the latest released by the Film Distribution Division, U. S. Naval Photographic Center. They deal with specifics in Naval Aviation.

MN-10371B (unclassified) *A-7 Familiarization: Flight Operations*. Deals with taxi and takeoff procedures, flight maneuvers, stalls and spins, inflight refueling and landing procedures (15 minutes).

MN-10371A (unclassified) *A-7 Familiarization: Ground Operations*. Includes preflight servicing, inspection and engine start and post-start procedures (18 minutes).

MN-10593 (unclassified) *The Anti-exposure Ventilated Wet Suit*. Shows cold protection features and how the ventilation system provides inflight comfort for the pilot (11 minutes).

MN-10644 (unclassified) *Painting Naval Aircraft*. A "how to" film dealing with methods used in painting aircraft (15 minutes).

MN-10645B (unclassified) *Aircraft Hand Tools - Wrenches and Socket Wrenches*. How to properly use the basic hand tools (9 minutes).

Instructions for obtaining prints of newly released films are contained in OpNav Instruction 1551.1E.



OFF THE COAST of Vietnam, a Sea Knight lifts an 8,012-lb. J-57-P-10 engine from Camden (AOE-2) to Constellation (CVA-64). This is believed to be a weight record for the UH-46 during a vertical replenishment.

Navy Competitive Chute Team Members Hold International Licenses

The U.S. Navy has officially inaugurated the Navy Competition and Exhibition Parachute Team at NAS Lakehurst, N.J. It is slated to make its first appearance at NAS Memphis.

Members of the team are: Lt. Bert J. Anzini, PRCM Marvin R. Kubler, PRC Charles S. Seymour, PR1 Walker D. McCraw, PR1 Herbert C. Thorton, PR1 Paul J. Geise, PR1 Richard A. Brower, PR2 Fred D. Vaow and AM1 C. E. Seymour.

The purpose of the group is to provide official Navy representation in sanctioned national and international skydiving competitions. The team also may participate in approved military and civilian events open to the public.

Originally the team was formed in 1960 as a sport parachute outfit. Since that date, the team has made more than 5,000 injury-free jumps. Each parachutist owns his own jump gear and has invested an average of \$600 in equipment. All the team members hold international parachuting licenses, class D (expert). In addition, the members are qualified for a 30-second free fall from an altitude of 7,000 feet and each has at least 350 jumps to his credit.

Patrol Squadron is Commended Maintenance Described as Outstanding

Jacksonville-based squadron VP-45, now deployed to WestPac at Sangley Point, R.P., and U-Tapao, Thailand, has received a letter of commendation from Rear Admiral W. T. Rapp, commander of Patrol Force, Seventh Fleet.

The letter, addressed to Commander W. H. Saunders, the *Red Darters*' C.O., praised the maintenance effort handled by VP-45 since the outfit deployed to WestPac in December 1968. The letter states, in part: "Noteworthy is the performance of your maintenance personnel at U-Tapao, where operational commitments require a minimum of two Alpha aircraft each day . . . from a three-aircraft detachment. This requirement has been achieved despite the most austere conditions."



NAVAL AVIATION
NEWS



NAVAL AVIATION NEWS
SPECIAL
PHOTOGRAPHIC AWARD
FOR THE YEAR 1968

PRESENTED TO ~
PH3CDV W. R. CURTSINGER
U. S. NAVY
ATLANTIC FLEET COMBAT
AFERA GROUP

OCTOBER 1968



NAVAL AVIATION
NEWS