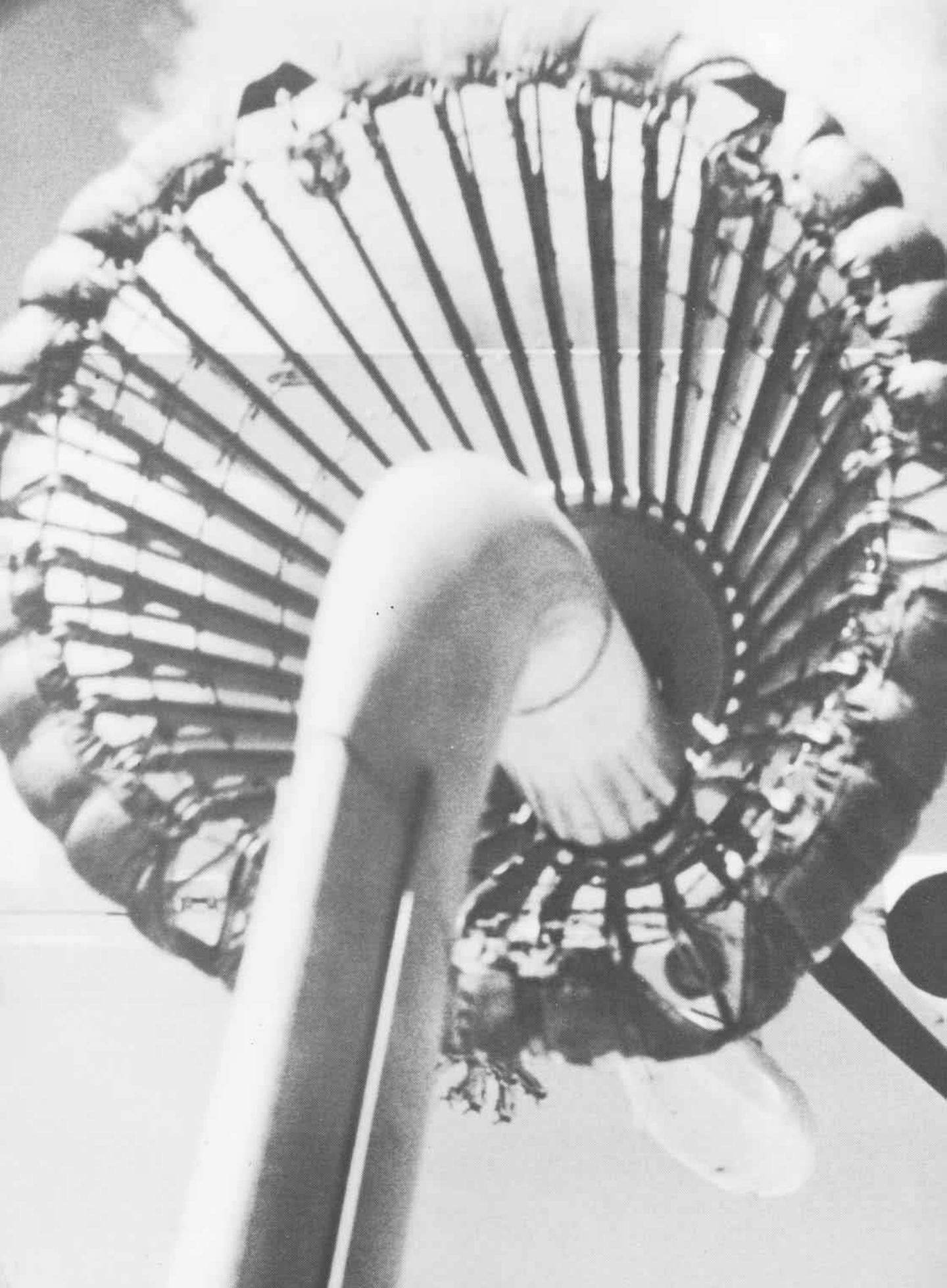
naval aviation news

January 1980



naval aviation news

SIXTY-SECOND YEAR OF PUBLICATION

COVERS – Front cover arrangement of HMX-1 helicopters in action is by NANews' Charles Cooney. The squadron is featured beginning page 8. Back, 17-year-old Rick Allsopp, son of Navy Captain Richard E. Allsopp, filmed the VF-32 F-14 Tomcat traveling near the speed of sound. Rick was aboard USS Kennedy at the time for a 1978 dependents' day cruise. PH1 G. W. Martin was aboard an Enterprise-based VA-35 Intruder in 1968 when he filmed this in-flight refueling operation with squadron A-6s.

EDITOR'S CORNER

Gunfighting Brothers. A pair of VF-124 *Gunfighters* scored a first on a pilot familiarization flight. NFO instructor Lt. Doug Law surpassed 1,000 flight hours in the F-14 *Tomcat*. The

pilot with him on the milestone hop was none other than Lt. Don Law, his brother. Don was undergoing fleet replacement pilot training at the NAS Miramar-based squadron.

Overheard in a Ready Room. "Just what is a jet pilot?" someone asked. The reply: "A jet pilot is a smart bullet."

Trivia. From a Lockheed-Georgia press release comes this report: "What do you get when you combine a slide rule, a calculator, a creative engineer and the world's largest airplane? The answer is a collection of weird statistics. For example, did you know that the. . .C-5A *Galaxy*, if called upon, could carry 25,844,746 Ping-Pong balls?" Statistical engineer Clarence Lake did the figuring and produced some other cargo loads for the *Galaxy*: 100 Volkswagen Beetles, 328,301,674 aspirin tablets, 752,000 hockey pucks, and 3,222,857 tortillas.

Luncheon Farewell. When Cdr. Bob Allen of the DCNO(Air Warfare) section of OpNav in Washington, D.C., got orders last year, a traditional farewell luncheon was scheduled for him. At the bottom of the flyer advertising the event was a note: "Bob's off to command RVAW-120, the East Coast motorized Frizbee Factory." RVAW-120 is based at Norfolk, Va., and operates the radome-topped E-2 *Hawkeye*. We suppose that, on occasion, they fly a Frisbee or two as well.

Tail Heavy. Retired flyer, Cdr. E. T. Garvey of Alexandria, Va., sent us this note about Naval Aviation in yesteryear. "We were patroling off the southern coast of Ireland in an H-16 patrol plane. The nose kept coming up, so I wrote a note to the mechanic in the rear mentioning that the aircraft was tail heavy. About five minutes later I received a note back with this information: "Looked all over the tail – nothin' on it." On another occasion, Garvey received a note from a mechanic once again. It read, "Fly low – almost out of gas!" Added Garvey, these incidents reflected how green our crews were in the WW I years.

Shrunken Sailor? Timmy Sharpee didn't really lose a lot of weight. He's a , three-year-old whose father, PRI Tom Sharpee, is assigned to Naval Air Station, Point Mugu. Timmy donned Dad's coat and trousers to give Navy and civilian personnel an idea of how young they might feel with proper health care. The event was part of a Lifespan program sponsored by Point Mugu's Civilian Welfare and Recreation Committee. PH2 Nathan Gates took the picture.

The Sailor and the Mouse. Walt Disney World at Lake Buena Vista, Fla., saluted the U.S. military with Armed Forces Day last autumn. In the picutre, Mickey Mouse himself, dressed in his Steamboat Willie costume, welcomed an unidentified petty officer to the Magic Kingdom.

DID YOU KNOW?

ANA Convention

The fourth Association of Naval Aviation Convention/Symposium was held in Jacksonville, Fla., last October. Of particular interest was the effort made to contact junior officers and enlisted personnel. Several aviation unit reunions were held in conjunction with the main convention, including Air Group Ten, USS *Philippine Sea,* VP-5, VAs 75 and 106, and VT-82.

Nearly 1,000 members, together with other visitors, were at sea on board USS *America* during the first day of the convention. They witnessed air operations featuring an LSO derby to select the most proficient landing signal officer in the Atlantic Fleet. Winner was Lieutenant Barney Ruebel of Carrier Air Wing Seven.

Industry took over the second day, previewing what the future may hold for Naval Aviation. Then, on the third and final day, an address by the Honorable James Woolsey, Under Secretary of the Navy, dwelt on the role of the maritime forces as instruments of national policy, the fiscal pressures facing Naval Aviation, and the challenge to find new ways of looking at weapons systems. Rear Admiral James Service presented an update on the costs of aviation manpower, the problems associated with retention and programs aimed at solving the problem.

An unusual feature had a junior officer-enlisted panel of five, "telling it like it is." Their papers covered the requirements of a viable military career — from benefits, pay, restrictions on flying, leadership and the quality of personnel, to patriotism. Economics seemed to be the main theme.

CNO Admiral Thomas B. Hayward was the guest speaker at the closing banquet. Awards were given to six junior officers for outstanding contributions during the past year. Also recognized were Atlantic Fleet Sea and Shore Sailors of the Year; Lieutenant C. A. Hiers of a naval training staff in Pensacola, winner of the Naval Aviation Foundation essay contest; and the winner of the LSO Derby. During the award ceremonies, the Silver Falcon Award passed from Major General Lou Conti, USMC, to Rear Admiral Earl Forgy, USNR, designating him as the reserve aviator on active reserve status for the longest time.

The next ANA convention will be held in Washington, D.C., May 1-4, 1980.

Gray Eagle

Lieutenant General Andrew W. O'Donnell, Commanding General, Fleet Marine Force, Pacific, is now Gray Eagle No. 32, the active duty Naval Aviator with the earliest date of designation. The trophy was passed to him on October 30, at a ceremony in Pearl Harbor, by Admiral Maurice F. Weisner, who retired as Commander in Chief U.S. Pacific Fleet, ending a 38-year Navy career. Vought Corporation sponsors the Award.

The Association of Naval Aviation hosted the ceremony transferring the Gray Eagle. It commissioned the Pearl Harbor Squadron of the association at the same time.

New FFG

Navy's sixth *Perry*-class guided missile frigate, FFG-26, has been named *Gallery,* honoring the late Rear Admiral Daniel V. Gallery and his brother, the late Rear Admiral Philip D. Gallery.

RAdm. Daniel Gallery was a former Assistant Chief of Naval Operations (Guided Missiles) and Commander Hunter-Killer Force, Atlantic. During WW II, he earned the Bronze Star Medal for combat achievement as C.O., Fleet Air Base Iceland, and the Distinguished Service Medal for his daring command of an antisubmarine task group built around the escort carrier *Guadalcanal.* His task

DID YOU KNOW?

group sank three enemy submarines in the Atlantic before capturing the German submarine U-505 off the west coast of Africa.

RAdm. Philip Gallery, prior to serving in the Pacific in WW II, earned the Legion of Merit for his leadership in organizing and administering the Antiaircraft Training Test Center at Dam Neck, Va. Later, as commander of the destroyer *Jenkins,* he received a second award of the Legion of Merit and two awards of the Bronze Star Medal for distinguished service and combat achievement during the Marshalls, New Guinea, Philippine and Borneo campaigns. After WW II, his assignments included command of Destroyer Division 72, the fleet oiler *Passumpsic*, the cruiser *Pittsburgh*, and Surface Antisubmarine Detachment, Atlantic Fleet.

F/A-18 Hornet

The F/A-18A *Hornet* made its air show debut in September during the Air Expo at NATC Patuxent River, Md. A large crowd watched as Bill Brinks, McDonnell Aircraft test pilot, made a touch-and-go landing, two low-speed passes and an afterburner light-off.

Designed for Navy and Marine Corps use, the *Hornet* is being flight tested in St. Louis and at NATC. Six *Hornets* have accumulated more than 250 flight hours since the first flight in November 1978. Special runway facilities at the Test Center have allowed catapult launches and arrested landings to be made, preparatory to actual sea trials aboard a carrier later on.

An F/A-18 weapons tactics trainer, Device 2E7, will be built for the Navy by Hughes Aircraft Co., Los Angeles, Calif., under a contract awarded in September by the Naval Training Equipment Center. The contract calls for delivery of the trainer within 36 months to NAS Lemoore, with a second unit, if needed, to go to MCAS EL Toro.

The weapons tactics trainer will simulate all normal and emergency

operations of the aircraft, in addition to providing air combat operational modes. It will also simulate all modes of weapons systems operations. Driven by digital computers, the trainer will have two trainee stations in individual 40-foot domes. Visual displays, including computer-generated images of aircraft, will be shown on the interior of the domes.

Two other contracts for *Hornet* training systems have been awarded to Simulation Systems Division of Gould, Inc., Melville, N.Y., for a part-task trainer, and to Sperry SECOR, Fairfax, Va., for an operational flight trainer.

Britannia Award

The 1978 Britannia Award was presented to Ltjg. Ronald J. Miller on September 7 by Royal Navy Fleet Officer Flotilla Three, RAdm. P.G.M. Herbert. The ceremony took place aboard HMS *Hermes,* the flagship of a Royal Navy force on a routine port call to Norfolk, Va. Ltjg. Miller is stationed with VF-74 at NAS Oceana, flying F-4J *Phantoms.* He was designated a Naval Aviator in March 1978.

The award is presented annually to the Navy or Marine Corps student pilot

who completes advanced flight training with the highest overall weapons score. It was begun in 1957 by the Lord Commissioners of the Admiralty of the United Kingdom in appreciation for U.S. Navy assistance in training British naval pilots between 1952 and 1956, at the time of the Korean War.

Grampaw Pettibone

Coarse Air Work

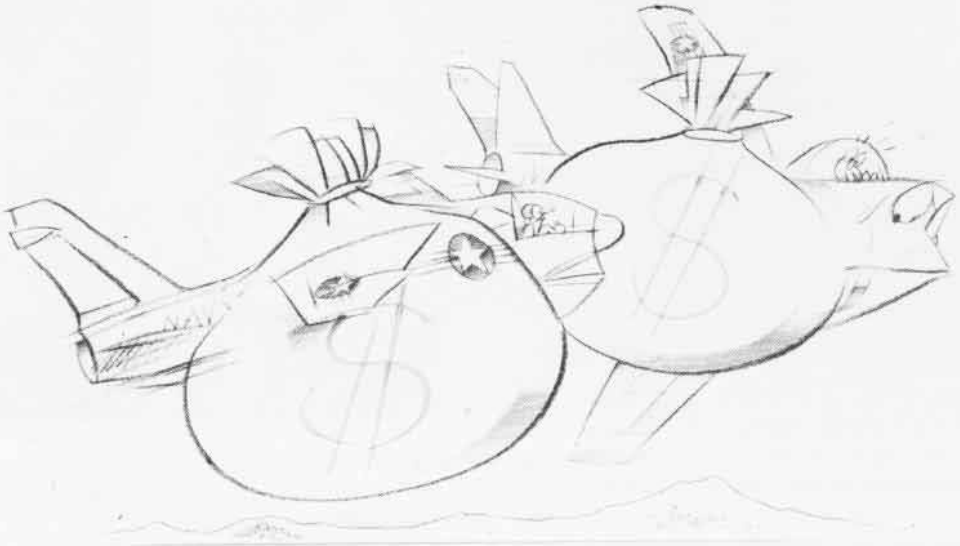
Dateline Mediterranean: Sixth Fleet carrier operations off the coast of southern Italy. As the sun broke through the predawn haze of the calm Ionian Sea, a pair of A-7 *Corsair II* pilots were finishing an early breakfast and discussing with enthusiasm their upcoming low-level training mission through southern Italy. The flight brief, utilizing squadron briefing guides, discussed controlling agencies, frequencies and details of the Italy-One low-level route. A change of flight lead en route was briefed; however, the exact procedures were not discussed.

After launch, the section of two A-7s rendezvoused and proceeded toward the beach to their coast-in point, holding briefly at 10,000 feet for clearance onto the low-level route. Following radio contact with the controlling agency, their clearance for descent to 2,000 feet above ground was granted approaching the first checkpoint. The flight proceeded

across the beach, the wingman maintaining his prebriefed position with 400-500 feet separation on the left wing line. Passing the first checkpoint, the flight leader directed the wingman to cross over to the right wing position. The wingman complied. Passing checkpoint two, while in a right turn for checkpoint three, the wingman suggested, "Why don't I go ahead and take the lead?"

The flight leader concurred with a transmission of Okay (exact wording not recalled). The flight leader meant that he would pass the lead visually as soon as he was wings level. He had made a left turn at this point to correct for a slight overshoot of the desired course. The wingman, however, assumed that the lead had been passed and transmitted, "I've got it."

This call was not heard by the leader and no reply was received. The leader, at this point, had leveled his wings and was visually clearing the area to his left. He was close to a small town and civilian airport. The wingman accelerated slightly to facilitate the lead change and continued in an easy left turn. He observed the leader closing on him and thought that



ILLUSTRATED BY Osborn

he was crossing over to the right wing, so he took no evasive action. He then looked briefly back into the cockpit to check his instruments.

The leader now looked to his right to pass the lead when he saw his wingman less than 20 feet away. With collision imminent, the leader pulled hard up and left. The aircraft collided, both becoming uncontrollable. The leader's aircraft rolled rapidly to the left for an undetermined number of revolutions. The pilot ejected in an inverted attitude approximately 1,500 feet above ground. The wingman experienced a severe yaw which was unsuccessfully countered with opposite rudder. His aircraft then rolled violently left. Departure recovery procedures were initiated, but were ineffective. The wingman ejected in a steep nose-down attitude, approximately 1,200 feet above ground.

Both pilots made successful parachute landings (uninjured) within one-fourth mile of the crash sites. One aircraft impacted a cultivated farm field, the other crashed into a two-story farmhouse and a barn, unoccupied at the time. The pilots were assisted by local citizens of the nearby town, examined by a doctor, then transported to the Sigonella naval air facility.

Grampaw Pettibone says:

Holy low-level lunacy! This is enough to make grown men cry. We lose enough flying machinery to equipment malfunctions, emergency situations, etc., but to *give* away a pair of *Corsairs* to a "low-level" benefit like this is just *two* much! The cause of this accident was listed as pilot error. Some attributed credit to the leader (whoever he was) and some cited the wingy (the other guy).

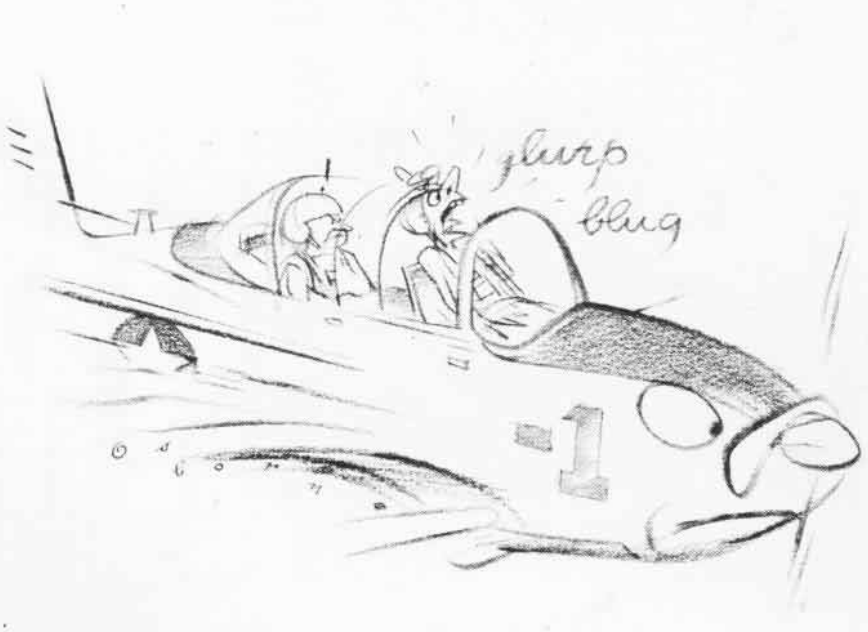
The leader was cited for his inadequate brief, nebulous radio transmission and failure to maintain adequate lookout and control of the flight. The wingman was tagged for his failure to request clarification of the leader's Okay; acknowledgement of his call, "I have it;" and failure to exercise due care during what he perceived to be a lead change.

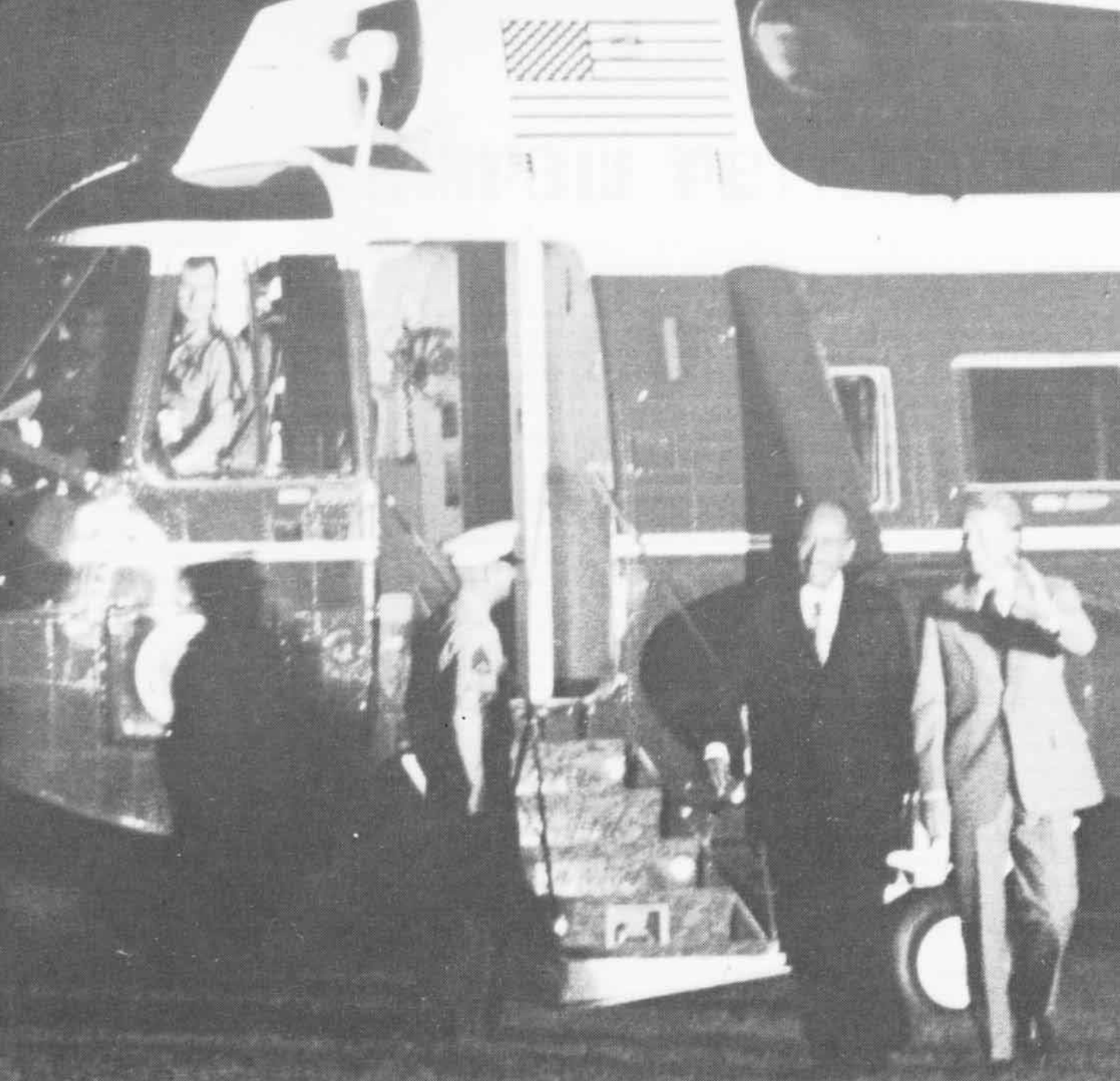
It was stated that the wingman, who had been with this command for four months during work-up training and operational readiness exercises prior to deployment, did not know how to make a lead change, for a variety of reasons (i.e., did it differently in the training command, didn't know SOP, lead change not discussed in Natops, etc.). If this be the case, Old Gramps would lay a few pounds of supervisory error on the command for not monitoring this young stud's capabilities. Gramps just can't believe this was the first lead change this pilot performed in this command. Who observed or debriefed the others?

Dang it all, gents, this really gets back to basics! This accident could have cost two lives. It did result in the loss of two *Corsairs* – a breed which is vanishing like buffalo. You can rest assured we have literally bought the farm, in this case!

From the Mailbag

At the end of a safe-for-solo check flight, a student Naval Aviator was asked to demonstrate the T-34B engine failure emergency procedures. The student, 6'3" tall, had raised his seat to the full-up position which was contrary to the instructor's advice. During execution of the engine failure procedure, the student moved the canopy aft, in accordance with procedures, but his helmet visor button became jammed in the canopy bow, pinning the pilot's head back against the seat. The pilot lost control of the aircraft and was unable to communicate with the instructor due to garbled snorts and grotesque sounds resulting from ram air effect upon his attempted conversation with his nose stuck in a slip stream. The instructor made a recovery and the duo returned safely to land. However, the student got a down. The instructor got nauseous.





HMX-1

By Helen Collins

". . . there is a large body of opinion in the Marine Corps that figures helicopters aren't going any place, so, if you are interested, stay here and I'll get your names. If you are not, don't waste your time or mine, just shove off right now!" It was 1947 and Marine Corps Colonel Edward C. Dyer was addressing about 60 officers in the student body in Marine Corps Schools at Quantico. He was looking for personnel to staff the developmental helicopter squadron about to be commissioned, which he was going to command. The squadron was to pioneer an entirely new concept in airborne warfare – transporting Marines to the battle area by helicopter.

About two-thirds of those present got up and left. Still more dropped out later. None of the skeptics could have envisioned the role that helicopters were going to play in the unfolding drama of military rotary wing aviation.

HMX-1 was commissioned at Quantico five months later on December 1, 1947. There were eight officers, one

HMX-1 CH-53E hauls H-46.

enlisted man and no aircraft. None of the men had ever flown in a helicopter. In just another five months, during Operation *Packard II,* in May 1948, the squadron carried out the first ship-to-shore helo lift in military history, using five HO3-1s. The helos carried only 66 men but the operation opened up a new era in Marine Corps assault tactics.

Today at Quantico, almost 32 years later, HMX-1 is still quietly going about its business. However, developmental work is just one facet of its mission. It is a unique squadron in that it is tasked with providing helicopter transportation to the President of the United States.

The presidential helicopters are VH-3Ds, modified versions of the Navy's SH-3 *Sea Kings,* and are found only in HMX-1's inventory. These aircraft are the nucleus of the squadron's presidential support operation known as the Executive Mission. Elaborate navigation equipment and an extensive communications system have been built into the executive helos, which are identical except for their bureau numbers.

A VH-3D becomes *Marine One* only when the President is physically aboard and then his seal is displayed on the side of the helicopter. *Marine One* and *Air Force One* (Air Force planes are used to transport the President on long distance flights) are call signs designated by the FAA, not for any particular plane but for whichever one the President is aboard, and only while he is aboard.

Marine One usually carries the President around the

capital area – to Camp David, Richmond, Baltimore, Norfolk – with return to the White House the same day. When he has to make longer trips, *Marine One* picks up the President on the White House lawn and flies him to Andrews AFB, where he boards *Air Force One. Air Force One* then, for example, may fly him to New York, perhaps to Kennedy Airport, where he disembarks and gets on another *Marine One,* a different helicopter from the one that picked him up on the White House lawn, with a different bureau number and crew, which flew up to New York earlier in order to be there waiting for him.

Marine One might then fly him from Kennedy Airport into Manhattan to one of the various heliports around the city, a ball field or park, whatever his destination calls for. It might have to helilift him to a number of places around the city. There could also be a second helicopter to carry other members of the presidential party.

A landing zone control officer is on hand whenever *Marine One* lands. Usually, one of the executive support personnel will be on the scene to make sure all arrangements have been completed for landing, always a critical phase of a trip. When the President arrives to board *Marine One,* the pilots are already inside and the crew chief is at the door to greet him. In the landing zone, whether the plane is landing or departing, every possible safety requirement is exercised and the landing zone control officer has as many assistants as are necessary, depending on the number of helicopters being used.

When the President makes a trip overseas, a multitude of steps are added to what must be done. On President Carter's trip to Cairo, a presidential support helicopter was there waiting for him. The VH-3D flew from Quantico to Andrews, where it was disassembled and loaded aboard an Air Force C-5 for transportation to Cairo. There it was unloaded and reassembled by an HMX-1 crew. When the President's visit came to an end, the procedure was reversed. The helicopter was disassembled, returned on another C-5 to Andrews, reassembled and flown back to Quantico. The same steps were followed when the President visited Panama, and more recently Japan and Korea. Regardless of where he travels, the scale of operations is tremendous and no small detail can be overlooked.

When the Vice President travels, a presidential support helicopter becomes *Marine Two* once the Vice President is aboard.

HMX-1 also provides transportation for members of the Cabinet and Congress and various dignitaries such as visiting heads of state and senior service officers.

The squadron has provided helicopter support on many significant and historical occasions. An HMX-1 helo was aboard *Hornet* when *Apollo II* splashed down, as President Nixon had flown there to greet the astronauts personally. Later, at New York's Kennedy Airport, a squadron helo picked up the astronauts and carried them to the pier at the end of Wall Street to begin their triumphal ticker tape parade up Broadway. Still later, in Los Angeles, another HMX-1 helicopter was waiting for them.

Golda Meir and Prince Phillip have been passengers. More recently, the squadron provided transportation during the Camp David summit, the Egyptian-Israeli peace conference and the top level economic talks in Japan. At various times, squadron helicopters have operated throughout the U.S. and in Japan, Europe, Africa, the Middle East, South America, Mexico and the Caribbean.

With a mission as exacting as that of presidential support, HMX-1 pilots, copilots and crew chiefs must meet rigid requirements, some imposed by the White House and some by the squadron itself. Minimum flight time requirements are high for both aircraft commanders and copilots. A detailed background investigation and special security clearance are needed to qualify personnel for the squadron mission. They then go through a special training program. Pilots come to the squadron not only trained but already seasoned in their profession. They carry out their unusual and demanding tasks, very much aware of the responsibility that has been given to them.

In addition to its Executive Mission, HMX-1 is still committed to its original role in helicopter development. HMX-1 functions as a test bed for the operational evaluation and development of Marine Corps helicopters and their related systems and equipment.

Projects are assigned by Headquarters Marine Corps, the Marine Corps Development and Education Command (MCDEC) at Quantico, or by Commander, Operational Test and Evaluation Force (ComOpTEvFor) at Norfolk, the naval activity which oversees the operational evaluation of any major Navy acquisition.

The squadron's main objective in testing an aircraft is to determine whether or not it will perform the operational mission for which it is intended, once it gets out to the fleet. Will it be compatible with supporting systems already in existence? How reliable and maintainable is it? Will the supply system be able to sustain it in the field?

As part of the operational evaluation process HMX-1 monitors the results of contractor's testing, both ground and air, and in some cases goes to the manufacturer's facility to actually witness the testing. The contractor is required to submit reports on the ground testing before the aircraft goes to the flight stage. An example of this is the Sikorsky CH-53E *Super Stallion,* which is going through the evaluation process. Prior to the time the aircraft was test flown, it first had to be ground qualified.

After an aircraft is ground and air qualified by the contractor, the logical sequence is for the Naval Air Test

Center at Patuxent River to perform a technical evaluation to ensure that specifications have been complied with. There is no need for an operational evaluation until technical requirements are met first. NATC determines that the helicopter goes as fast and as far and lifts as much as the specifications call for, and that all systems meet test requirements. HMX-1 also monitors results of NATC's testing.

The next step is operational testing on the total aircraft or on some system that will eventually find its way into the aircraft. The squadron completes as much of this testing as possible at Quantico where it can control support, scheduling, etc. Sometimes, however, it needs outside assistance. For example, an LPH was the testing ground for the CH-53E so that squadron personnel could check out the normal operations a helo might perform aboard a carrier. Other testing has taken place at Cherry Point, Oceana, Norfolk and at Fort Bragg where the

Luggage being transferred to Air Force One.

CH-53E lifted a new 155mm howitzer, along with its crew and a load of ammunition (this was the new M-198 howitzer), that was being jointly developed by the Army and the Marine Corps. The main effort is directed toward as much realism as possible.

Last winter the Marine Corps wanted to explore the application of skis on a CH-46. HMX-1 took a CH-46 equipped with Swedish helicopter skis to upstate New York to compare its performance in deep snow operations with that of a CH-46 without skis. The tests proved successful and showed what modifications will be necessary in designing skis for Marine transport helicopters.

The squadron sometimes needs interservice assistance. Any Navy support is normally tasked through ComOpTEvFor. A quarterly conference is held in which shipping support is allocated. That is how HMX-1 was able to use USS *Nimitz* (CVN-68) to demonstrate that it could retrieve a non-flyable aircraft from one carrier deck and lift it to another ship (or directly to a repair facility), getting it into overhaul sooner. HMX-1 used an A-6 off the overhaul line in Norfolk for the demonstration.

At times a ship or perhaps an airframe is made available, and then weather or a delayed delivery will disrupt the schedule – or some other element of support may simply fall through. The squadron tries to set up a three-month timetable, six months in advance so that it can tie in all of the support. But at the same time it has to be flexible enough to reschedule as necessary.

HMX-1 recently had the only CH-53E which is being put through its paces. It is the heaviest helicopter in the Free World. The E is a growth version of the D, and since it has a new, rather than a modified airframe, it requires a complete evaluation of the total weapons system. This triple turbine-powered, seven-bladed helo (the D has six) has a 16-ton payload capability. Its Marine Corps mission will be transport for amphibious assault, retrieval of aircraft and equipment, and deployment of heavy weapons and equipment. Although it has its special capabilities, the E retains much commonality with other H-53s, minimizing the need for special parts, ground support equipment or training.

The CH-53E evaluation includes making sure that it can handle all of the internal cargo normally carried in an amphibious assault, as well as the external loads it is slated to carry. Part of its cargo carrying system, just developed, has two hooks at the bottom of the helo in contrast to the D's one. Suspension from two hooks gives stability to cargo of unusual size or shape, that might otherwise twist or swing in flight. The aircraft also has a 36,000-pound capacity single-point hook.

Evaluations made by HMX-1 in recent years include a low-range omnidirectional airspeed system; operational evaluation of the CH-46E which is now in the fleet; a fog dispersal system; and a pad for landing helos in forward areas. The squadron is also evaluating a microwave landing system, similar to those used by civilian aviation in inclement weather but with additional capabilities. The Marine Remote Area Approach and Landing System (MRAALS) feeds additional information to a pilot, enabling him to go into a rather small cleared area. Also among its projects is the CH-46 fiberglass blade program (*NANews,* December 1977, page 3). There is also a continuing program of evaluating navigation systems for the Navy and Marine Corps.

In testing the CH-53D *Sea Stallion* with the elastomeric rotor head (*NANews,* November 1978, page 5), the Naval Air Systems Command chose a single support site, MCAS New River, N.C., since peculiar (not standard) parts are required in the early stages of the system. HMX-1 was designated to monitor the elastomeric rotor head program, which involves protracted testing since it is a reliability type demonstration. Sometimes if a system functions and appears to meet all of the technical specifications, it may go into limited production and be put out into the fleet to see how it performs in actual service. For that reason, a limited number of CH-53Ds are at New River, flying with the elastomeric rotor head.

During its evaluation by HMX-1, the CH-53E (or any other system) is normally totally maintained by Marine Corps personnel who are sent to special contractor schools since there are no Navy schools covering the CH-53E. Common parts support is supplied through the squadron since it is a follow-on version of the 53D, parts for which are in the Navy supply system. If there are any peculiar parts, they are supplied from a support network set up by the contractor and the Naval Air Systems Command.

Professional load preparation and handling personnel, called a helicopter support team, are assigned to HMX-1 from Camp Lejeune, N.C. They prepare all of the cargo to be lifted. Since the CH-53s can carry much heavier loads than ever before and no one had yet developed lifting procedures for such loads, HMX-1 had to start from scratch. The handling personnel lift the loads on a crane, pursuing development procedures. Only when they decide that the load is stable will it be put into the air and very cautiously flown. Then they can determine whether or not the load is going to shift or stay where it belongs.

Navy and Marine Corps photographers were also assigned to support the squadron. Photographs and movies were taken of the operation for later reviewing. In some cases, they recorded maintenance failures or load preparation procedures so that there are pictures to document them.

Since HMX-1 personnel are operationally oriented, they have a wide experience base. Usually an enormous amount of technology goes into any system, whether it's the complicated instrument landing system or the simpler fiberglass rotor blade. Special support equipment and repair procedures may not have been developed before the system gets to HMX-1. The average Marine with perhaps a general high school education may not always be able to follow the manufacturer's technical manual. With any of the new systems, personnel must be sent to the contractor's school, or sometimes the contractor brings

technicians and engineers to the squadron to conduct the school. Squadron personnel can then maintain the item while they have it. However, if it is something very technical like the MRAALS, the service's capability to support the item during its first few years in the fleet, may be somewhat limited. In that case most of the maintenance outside of the routine tasks may be done by contractor personnel.

Having a nucleus of highly experienced personnel, brings its own problems. If you take a Marine or a Navy man and train him in something very complex (make him an expert in flying a four-engine jet or in maintaining a sophisticated radar system), you have a hard time hanging on to him. That is an ongoing problem for the squadron.

In addition to its executive and developmental missions, HMX-1 is charged with other responsibilities: support to Headquarters Marine Corps; support for the school systems under the Marine Corps Development and Education Command, including the Basic School and Officer Candidate School for officers; demonstration and indoctrination flights; VIP support; administrative support to the Quantico Marine Corps band; Amphibious Warfare Presentation Team; and fire power demonstrations. The squadron also maintains a 24-hour standby for SAR missions, most of which are medevac in nature.

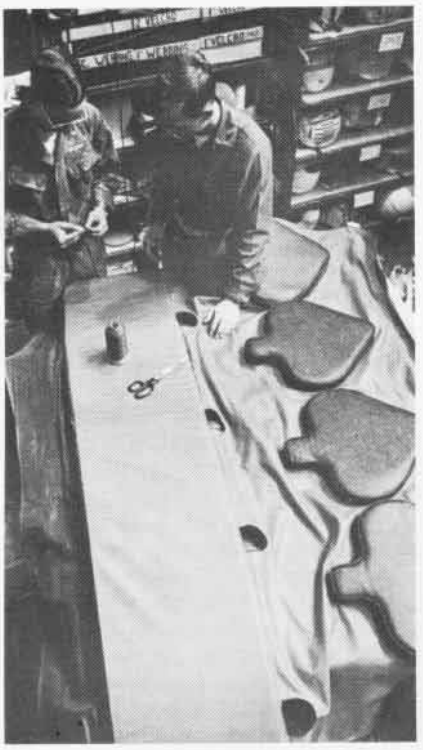
The four helicopters flown by the squadron to accomplish its various tasks are the VH-3Ds, CH-53D *Sea Stallions,* CH-46F *Sea Knights,* and UH-1N *Hueys.*

Future needs may call for new helicopters with enough muscle and stamina to perform heavy lift and other essential missions that existing aircraft cannot handle. These replacements will have to fly further and faster than today's helos. As the problems of technology and the problems of getting the dollars to buy the technology are overcome, HMX-1 expects to be evaluating those new systems, still operating out of one of the original hangars it has had since it was commissioned.

In their presidential support mission, HMX-1's personnel will probably find an increasing need for their services. As today's urgent problems mount, so have the demands on the President's time for meetings and conferences. HMX-1's white-topped helicopters will continue to swiftly and safely transport the President.

We wish to thank various members of HMX-1 without whose assistance and time information about this unique squadron would not have been available. Lt. Col. Frank E. Millner, C.O.; Maj. John P. Kline, Jr., White House Liaison Officer; Capt. I. J. Niemczyk, PAO; Maj. R. F. Patton, Operational Test Director for the CH-53E Program; and Maj. Richard J. Blanchfield, Operations Officer.

VIP West Coast



Story and photos by GySgt. Dub Allen

Marine Light Helicopter Squadron 267, based at Camp Pendleton, is the helicopter squadron usually called upon to provide Marine air transportation when needed for congressmen, senators, foreign dignitaries or other VIPs in Southern California. Its UH-1N *Hueys* feature easy access for planing and deplaning, versatility in landing zones, less noise and minimum problems with rotor wash. Eight of the squadron's 36 pilots qualify as VIP pilots. Its basic mission is to carry combat-ready Marines in support of 1st Marine Division training exercises.

When a VIP mission is given to the squadron's operations personnel, a distinct sequence of events begins. Three different sections go into action. For all three, pilot, crew chief and flight equipment shop, safety is the paramount concern. This has paid off because HML-267 now has more than 60,000 accident-free flight hours and has won three consecutive CNO Safety Awards.

While the pilot and copilot work on detailed inflight planning, the crew chief and the flight equipment shop get the helicopter ready. The shop prepares VIP kits, materials for which come through the supply system. The shop manufactures cushion seats, head rests and covers, and packages them. Each kit contains a five-man and a four-man seat, four headrest covers, two two-man seats, red carpet, two boarding steps and two VIP plaques to identify the passengers from the outside. Depending on the circumstances, a complete backup helicopter and crew might be launched with the scheduled aircraft. On occasion, one mission could involve up to three or four helicopters, all requiring VIP kits.

The crew chief, in addition to helping with the installation of the kits, confers with the pilots in deciding what extra equipment will be needed, such as flotation gear for flights over water, headsets for internal communications and ear protection for passengers.

Fueling arrangements must be made, as well as courtesy calls to all air facilities that may be involved in the flight. Some airfields, military and civilian, are unfamiliar with the handling of helicopters, and the pilots must make sure the mission goes smoothly at all points. Weather and winds, of course, are checked up to the last minute prior to launch.

When the *Huey* arrives at the pickup landing zone, the pilots remain strapped in their seats with the engines turning, while the crew chief stands outside to greet the VIP, his escort and party. Whenever the mission involves flying from one landing zone to another on a schedule that is precise to the second, the pilots and crew chief make a close inspection during the VIP's absence from the plane to make sure that everything remains in flying order.

Lieutenant Colonel J. R. Mires is the squadron's commanding officer.

Carrier

Is this aircraft ready for at-sea ops? This is a daily question for the Carrier Systems Branch at Naval Air Test Center, Patuxent River, Md. Charged with the responsibility of evaluating carrier airplanes, ashore and aboard ship, the "Carrier Suit" branch has many missions:

- Evaluate carrier airplanes to determine their operational capability from various class aircraft carriers and disseminate this information to the fleet.
- Investigate new problems resulting from at-sea deployment of airplanes.
- Develop and evaluate landing aids such as automatic carrier landing systems (ACLS), instrument and visual landing systems, head-up display and approach power compensator systems.
- Evaluate aircraft compatibility with new catapult and arresting equipment and modifications to existing equipment.
- Conduct certification tests of equipment pertaining to the launching, approach and landing of airplanes.
- Develop and evaluate new techniques and concepts of operating airplanes aboard carriers.

A major portion of Carrier Suit's physical plant is the catapult-arresting gear complex. The TC-7 steam catapult and MK-7 Mods 1 and 3 arresting gear systems are used for over 600 launch and recovery events each year. The site is manned by 30 military and 9 civilian technicians. The branch has two MK-8 Mod 1 fresnel lens optical landing systems to aid pilots in flying precision approaches. Recently installed at the arresting gear site was the aircraft laser tracking system. This provides closure speed, sink rate, altitude, ground track and range to a very high degree of accuracy.

A team of 8 officers and 18 civilian engineers is currently engaged in 50 projects that range in scope from on-board oxygen generating systems to F/A-18A carrier suitability demonstrations.

The following are a few of the many current branch projects:

Approximately 60 percent of Carrier Suit's work involves certifying carriers and naval air stations for the Mode I automatic carrier landing system. A Mode I approach is a hands-off-aircraft, coupled approach to touchdown on the flight deck or runway. Currently, all carriers and many naval air stations have the Mode I capability. To ensure their continued safe operation, the branch recertifies about 10 ships and/or naval air stations per year, as required. Mode I equipped aircraft include the A-7, A-6E, EA-6B, RA-5C and F-4, with developmental work continuing on the F-14, S-3 and KA-6D.

After fleet entry, the airplane and its weapons systems do undergo modifications to update and improve their overall capability. These modifications must be assessed as to their structural and functional integrity in the aircraft carrier environment. Such examinations are categorized as "shake, rattle and roll" tests. These subject the airplane to the edge of envelope structural limits in combination with various off-center spotting conditions for launches and off-center lineups for arrestments. The A-7 is used almost exclusively for external store tests as its structural limits are equivalent to or higher than other carrier-based airplanes. Usually the most exciting portion of the tests, the arrested landing phase, investigates structural integrity during off-center engagements, roll and yaw on touch-

F-14 on test runway at Patuxent River.

Suitability

down, free flight and high sink arrestment.

The Marine air traffic control and landing system, developed for expeditionary airfields, is designed to track and control six aircraft simultaneously to a fully automatic recovery. The first Mode I was made on April 20, 1979, at NATC in an F-4J. Six phased-array radars have been purchased for the research and development work which should culminate in Marine Corps introduction in the near future.

In April 1978, the United States won the international competition for a replacement for the instrument landing system. The U.S. microwave landing system (MLS) is to be incorporated in all civil and military aircraft by 1985. The multimode airborne landing system capability in all Navy and Marine aircraft will enable instrument approaches at all airfields throughout the U.S. and most of the world. A feasibility study is under way for MLS usage aboard ship.

Two-week shipboard compatibility trials of the AV-8A were recently conducted aboard *Belleau Wood* (LHA-3). The at-sea period was the first time the AV-8A had operated from an LHA. Purpose of the trials was to determine the specific limitations of AV-8A operations from the LHA and to re-evaluate overall performance and handling qualities of the *Harrier* in the shipboard environment. Short takeoff, (STO), vertical takeoff and landing (VTOL), operations were conducted using every available STO distance path, vertical takeoff spot and vertical landing approach/spot. Additional tests conducted were: VTOL up to limiting gross weights (with and without water injection); minimum end airspeed in a fleet representative loading; bow-to-stern STO; off-optimum longitudinal trim/nozzle setting for STO; and STO with a known destabilizing loading not previously cleared for shipboard operations. LHA night operations clearance was scheduled for the end of FY 1979 as were AV-8C shipboard tests. AV-8B shipboard tests are planned for 1980.

One of the most important current projects is the carrier suitability test of the F/A-18 *Hornet*. Because of the new airframe and complex flight control system, a very precise and careful buildup program was planned in order to identify potential problems early in the development stage. Tests related to carrier suitability include: deck spotting and tie down tasks, towability, launch bar hookup, off-center catapult shots, arrested landings, bolter and wave-off performance, approach flying qualities, approach power compensator tests and ACLS certification. Current plans are for shore-based testing followed by shipboard trials. Production aircraft number three has been designated the carrier suit aircraft. Special instrumentation has been installed to measure nose tow forces during catapult launches and arresting hook loads. Additionally, the landing gear has been totally instrumented to provide bending, torsion and stress loading. The airframe has been instrumented to enable a complete load analysis. Some of the associated flight safety parameters will be presented to the pilot through the head-up and digital display indicators.

This thumbnail sketch provides only an insight into the inner sanctum of the Carrier Systems Branch. Its mission is challenging, the tempo is high, and the duty comprises the best of both worlds – regular carrier ops in a shore duty billet.

By LCdr. Bill Beaty

By LCpl. Dawn Eagen

AIR PHYSIOLOGY

Red lights flickered on and off in the cockpit. The aircraft vibrated. My palms became sweaty. The pilot's voice crackled into my earphones above a series of explosions: "Prepare to eject! Prepare to eject!"

I stretched my legs forward, pressing my hips into the seat, and reached for the ejection lever above my helmet. At the command "Eject," I jerked the lever and a rush of air pressed against me as the canopy burst from the cockpit. I was hurled into the sky, aware only of extreme air pressure and sudden uplift as my parachute automatically blossomed. I was falling. . .falling.

Suddenly, reality took over and my eyes jerked opened. I was not crashing into the sea. I was flailing about in bed, awake after a terribly realistic dream. I began to recall what had happened yesterday.

Yesterday, I completed the indoctrination class in aviation physiological training at MCAS Cherry Point, N.C. The course deals with different aspects of flying in a supersonic high-performance aircraft. The course is a must for pilots and crew members. It is also available to those whose job requires a "backseat license," in the event they fly in certain aircraft. The entire staff is Navy and the training is covered from the medical standpoint.

At about 7:45 a.m. yesterday, Lt. Curtis G. Armstrong, Navy physiologist, began his briefing on the physical aspects of flying. He stressed the effects on one's body of high altitude and lack of oxygen. He emphasized the importance of a well-balanced diet, healthy body and clear head. He also identified potential problems and the remedies.

HM1 James L. Nealy then demonstrated escape systems. He pointed out the various components of the ejection seat, methods for ejection and the required body position in the seat. Nealy discussed the injuries that could result if the body were not in the correct position.

Visual problems and disorientation can result from speed, altitude and attitude in flying jets. HM2 William M. Pepper demonstrated this with a flash of color on the screen. We studied it for some time before we realized that our eyes were playing tricks on us. We were unable to distinguish the word "fly" on the screen because of the color.

A life raft, flares, a tin for water and some starburst candy are a few items of survival equipment that fall to earth with an ejected person. HM2 Richard A. Block lectured to us on survival equipment, and explained the care and maintenance that are required.

After the lectures, we climbed aboard the low pressure chamber for our "flight" to an altitude of 25,000 feet. We were assigned a seat and pressure breathing equipment. Before dogging the hatch, HM2 Pepper showed us how to use the mask. Once the hatch was closed, the sealed, airtight chamber was ready. My heart began to beat more rapidly as I realized the only source of oxygen was through my mask. Memories of the gas mask training in boot camp swamped me.

At 25,000 feet, I was instructed to remove my mask as I was to demonstrate to the others the effects of hypoxia (lack of oxygen) on one's senses. After two minutes, the area around my lips began to turn blue. I started to feel dizzy and lightheaded, and seemed to be walking on clouds. On the descent, we had to use the valsalva maneuver (clearing the ear passages) to avoid damage to our eardrums.

Next, at the paradrop station, I was

Lt. Curtis Armstrong, far left, explains manual seat/man separation as another student gets the "hot seat" during ejection seat training. Below, instructor adjusts oxygen masks in low pressure chamber.

the group guinea pig again. I was hung by the harness to demonstrate proper parachuting techniques – ways to alter direction while descending and the proper method of releasing the chute by the shoulder straps. In the unlikely event that the ejection seat does not drop away from the body after ejection, manual seat/man separation is necessary.

Finally, each of us was strapped into a simulated ejection seat on a mechanized escalator. At the order to eject, I jerked the handle activating the release. With my heart in my mouth, I was quickly propelled about seven feet straight up. This exercise was to acquaint us with the feeling of being rocketed from a jet, and was equal to one-third the actual sensation.

After successfully completing the course, we were presented wallet-size cards authorizing us to occupy a seat in jet aircraft.

Golden Eagles

The Early and Pioneer Naval Aviators Association (Golden Eagles) consists mostly of survivors among the first 1,900 designated Naval Aviators. Other members include pioneer helicopter and pioneer jet pilots (as in the case of Capt. Flint), and aviators who qualified for carrier landings when USS Langley was the only airplane carrier.

By Capt. Larry Flint, USN(Ret.)

My adventures may seem less glamorous than those of the early pioneer Golden Eagles of WW I and pre-WW II experience. However, the logging of a world altitude record into Navy annals is something I shall always look back to with pride and satisfaction.

The year was 1959. Project *Top Flight* was going on at Edwards AFB in California, using F4H-1s, numbers one and two. Number one crashed during a practice flight and Zeke Hulesbeck, McDonnell test pilot who had pioneered the project, was killed. Six weeks later, number two plane was ready to fly and, after shakedown flights by Tom Harris of McDonnell, Admiral Bob Pirie, DCNO(Air), gave the green light to go for the record, which was held by Russia at that time.

Number two plane was a standard pre-production aircraft except that several thousand pounds of non-essential weight were removed so that it weighed a little over 25,000 pounds empty (no offense to the NFOs, there was no radar installed); engine rpms were set at 110 percent and inlet guide vanes were opened; afterburner turkey feathers were closed tighter than normal for added thrust and fuel flow was increased 15 percent; engine inlet ramp and bellmouth positions were manually controlled by the pilot during run-in.

The flight profile consisted of take-off from Edwards, climbout over Point Mugu and dumping fuel to a predetermined quantity to get back on deck at Edwards with less than 1,000 pounds. The runs began by going into afterburner heading west of Point Mugu, reversing course to pass north of Santa Barbara, heading east towards Edwards between 40,000 and 46,000 feet. The altitude chosen for run-in depended on the coldest air temperature. About five minutes of run-acceleration were used to reach the pull-point over Edwards. The highest Mach number achieved was 2.41; normally 2.32 to 2.36 was maximum.

During practice runs, experiments were made to determine the optimum G to be used during pull-up and the optimum rate of G application. Eventually it was determined that near maximum G achievable, about 3.5, applied rapidly, was the most effective method. This procedure produced a maximum climb angle of approximately 50 degrees before stabilator control effectiveness was lost. Afterburner blowout occurred at approximately 65,000 feet.

As the aircraft ascended, the pilot used various switches to turn on an over-the-shoulder movie camera; activate a nitrogen bottle in the rear cockpit area to give some pressurization which reduced pressure-suit blow-up; turn off the radios to prevent burnout from lack of pressurization; reduce engine idle fuel flow to half flow, allowing the engine to remain below critical rpm and tot (turbine outlet temperature) for a longer time, since engines would normally overtemp and overspeed around 80,000 feet at normal idle fuel flow; and cut both engines to off between 85,000 and 90,000 feet as the rpm and tot would rapidly increase to extremes.

Because of the rare air density, flight control inputs had little effect on the aircraft as it ascended to the higher altitudes. When the plane approached the apex, forward speed dropped well below 50 knots as it started descending. Quite often it would roll slowly on the ascent and oscillate rather wildly as the attitude changed to nose-down during the descent. Since these maneuvers were nearly under zero G, the pilot did not feel the forces until after the plane regained flying speed at about 80,000 feet nose-down. No difficulty was experienced then in relighting engines and regaining control of the plane.

I made 15 flights on this project. Three were aborts. Of the 12 zoom climbs, all were above 90,000 feet. The lowest was 91,600 feet and the highest 98,560. I would be remiss if I didn't comment on the view outside the cockpit. It was truly beautiful yet somewhat awesome to watch the sky turn from blue to deep ultra-violet.

The record flight was made on December 6, 1959, a mere 20 years ago, in the forerunner *Phantom II* that many Naval Aviators and Naval Flight Officers flew in Vietnam and are still flying.

Although today's *Phantoms* have the appearance of middle-age spread since they no longer weigh in at 25,000 pounds and can't touch Mach 2.3 plus, I sincerely envy you guys who are still flying in them.

PEOPLE·PLANES·PLACES

Decommissioned

Upon completion of a seven-month WestPac cruise, the *Peacemakers* of RVAH-7 became the last Navy RA-5C *Vigilante* squadron. Cdr. T. Meyers, squadron skipper, participated in the decommissioning cere-

mony at Key West in September, ending the existence of the *Vigilante* photoreconnaissance community and 15 years of the squadron's tactical support to the fleet. Originally commissioned as VC-7 at Moffett Field on October 30, 1950, the squadron flew P2Vs, AJs, A3Ds and A5As before its redesignation as RVAH-7 in December 1964.

Awards

Norfolk-based *Kennedy* and *Midway* on the West Coast have been awarded the Marjorie Sterrett Battleship Fund Award for operational excellence. According to CNO Adm. Thomas B. Hayward, "The Marjorie Sterrett Battleship Fund is a manifestation of the faith that the American people have in our country, our way of life, and of the trust placed in the Navy to safeguard those ideals."

AMH2 Richard L. Shook, VF-43 airframe's troubleshooter, was awarded the Navy Achievement Medal in October 1979, for heroic action during training ops at Oceana. In July, during routine flight operations, Shook saw a loaded fuel truck headed directly toward the aircraft his crew was inspecting. He jumped aboard the truck and awakened the sleeping driver, narrowly averting a disastrous collision. PO Shook was presented the medal at a ceremony conducted by VF-43's skipper, Cdr. E. T. Smith.

The Navy's second highest peacetime award, the Legion of Merit, was recently awarded to Capt. William H. Saunders III, C.O. of NARU Jacksonville. Capt. Saunders was cited for outstanding service as Director of Flight Programs, Assistant Chief of Staff for Air Programs and Inspector General to the Chief of Naval Reserve from July 1976 through July 1979.

ABH2 David W. Prim was awarded the Navy Commendation Medal at Whiting Field, Fla., for heroic action aboard *Guadalcanal* (LPH-7), when he freed a pilot trapped inside his wrecked aircraft which was dangling over the side of the ship.

Records

Several activities marked accident-free milestones: VA-65, 15,000 hours; NADC Warminster, 17,000; VS-29, 30,000; VP-10, 45,000; VA-128, 62,000; and VQ-4, 71,000. VA-35 and VAQ-132 both reached nine years of accident-free flying.

Other noteworthy achievements in the fleet were: HC-1, 1,600th rescue; Cdr. R. H. Underhill, VT-22's C.O., 5,000 hours of safe flight time; VA-35's skipper, Cdr. John A. Pieno, 900th career trap; Cdr. Philip S. Gubbins, C.O. of VA-147, 2,000 A-7 hours; and LCdr. Gary Forsberg, PMTC Point Mugu, 2,000 hours in the A-6.

Et cetera

Looks like some Navy recruiters manage to operate something besides a desk. NC1s Mike Toomoth and Howard F. Henderson are shown here in an unusual aircraft, flying over the farmland of Eugene, Ore.

The first F/A-18A made its 100th flight recently at NATC Patuxent River, Md. where six *Hornets* are undergoing flight tests. The aircraft is manufactured by McDonnell Douglas for the Navy and Marine Corps.

A YAV-8B *Harrier* lifts off the ski jump at NATC with a gross weight of nearly

24,000 pounds. Piloted by Maj. Dave Beard, USMC, the prototype carried four 1,000-pound, inert Mk 83 bombs on this latest in a series of test flights building up to the AV-8B's maximum gross ski jump takeoff weight.

PEOPLE·PLANES·PLACES

The naval reserve program has many benefits that attract personnel into its ranks, but VP-65 was a bit surprised to receive a request to drill from reserve SSgt. Jerry L. Stocks, USAF, of the 402nd CLSS at Robins AFB, Ga. A civilian employee at Robins, Stocks was assigned TDY to Point Mugu to repair a C-141 that had sustained serious airframe damage. When it came time for him to perform his monthly Air Force reserve drill, he asked VP-65's skipper, Cdr. Tom Rhodes, if the squadron could use his services for a weekend. The C.O. said, "We had seen Jerry working on the C-141 during the week out on the VP-65 ramp and were

impressed with his energy and diligence. We were happy to have him lend us a hand." SSgt. Stocks points out the damaged area on the C-141.

Anniversary

VF-14, Oceana, celebrated its 60th birthday in September. When not at home base, Cdr. J. J. Dantone's *Tophatters* deploy as part of CVW-1 aboard *Kennedy*. Participation in such multiservice exercises as *Eagle Thrust, Solid Shield* and *Red Flag* is a regular part of the squadron mission.

Change of Command

HC-1: Cdr. Ronald B. Lewis relieved Cdr. Raul Vazquez.

HS-4: Cdr. Robert A. Wildman relieved Cdr. William R. Jenkinson.

HSL-32: Cdr. Thomas E. McFeely relieved Cdr. Michael B. O'Connor, Jr.

MABS-31: Maj. Augustus Fitch III relieved Maj. Raymond L. Thacker, Jr.

VA-12: Cdr. Robert A. Maier relieved Cdr. Richard B. Curtis.

VA-52: Cdr. Butch Williams relieved Cdr. James R. McGuire.

VA-305: Cdr. Paul G. Giberson relieved Cdr. Louis E. Jones.

VAQ-130: Cdr. John C. Hodell relieved Cdr. Charles E. Gudmunson.

VAQ-209: Cdr. Robert S. Williams relieved Cdr. Joseph A. Coughlin, Jr.

VC-2: Cdr. M. Brooks Chesser relieved Cdr. Wallace T. Lasuer.

VF-111: Cdr. Robert Geeding relieved Cdr. Ira Hipper.

VF-151: Cdr. Gary M. Hughes relieved Cdr. Hugh D. Wisely.

VF-154: Cdr. Gary N. Cook relieved Cdr. Phil. S. Anselmo.

VFP-306: Cdr. Robert F. Norrell relieved Cdr. Thomas C. Irwin.

VP-5: Cdr. Irvin C. Evans, Jr., relieved Cdr. Charles H. Conley.

VP-23: Cdr. Peter C. Baxter relieved Cdr. Henry H. Davis, Jr.

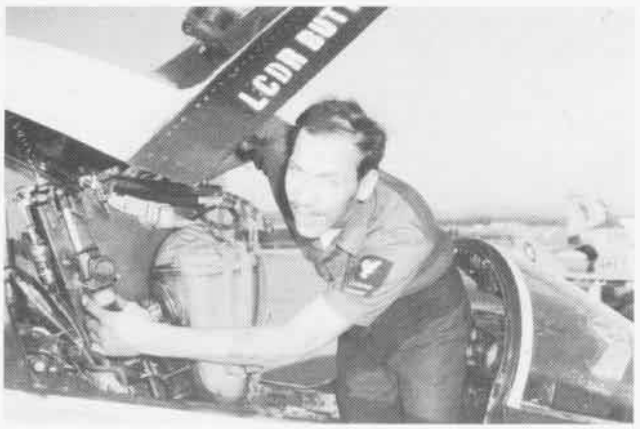
VQ-4: Cdr. Thomas W. Joyner relieved Cdr. F. C. Painter.

TIME TO STAY

. . . and come back in.

AME2 Gregory Grates

Reenlisted for four years on August 31, 1979, at the Armed Forces Examining and Entrance Station, Minneapolis, Minn., for a tour of duty with NAS Miramar's VF-154.



"My first enlistment in the Navy was a search for adventure and for a challenge. However, I was also eager to try my hand at something else, so I decided to get out after my first tour.

"It did not take long to become bored with the 9 to 5 routine, especially when compared with the excitement and challenge of flight deck operations. In civilian life, I was a skyscraper window washer, which was physically challenging and financially rewarding ($16.00 an hour). However, it did not provide the satisfaction of safely launching a multimillion dollar F-4 and its crew off the deck of an aircraft carrier.

"During this enlistment I hope to continue my visits to foreign countries and later to be part of the *Blue Angel* maintenance team. I see myself as one of those guys who likes to be someone special."

Did You Know?

That over 500 petty officers returned to active duty in aviation ratings during 1979 after varying periods of broken service. In addition, over 200 pilots and NFOs returned to active duty during the same time frame.

Lieutenant Commander Jon Lund, USN

Returned to active duty in October 1978 and is currently assigned to VT-25 at NAS Chase Field, Beeville, Texas.

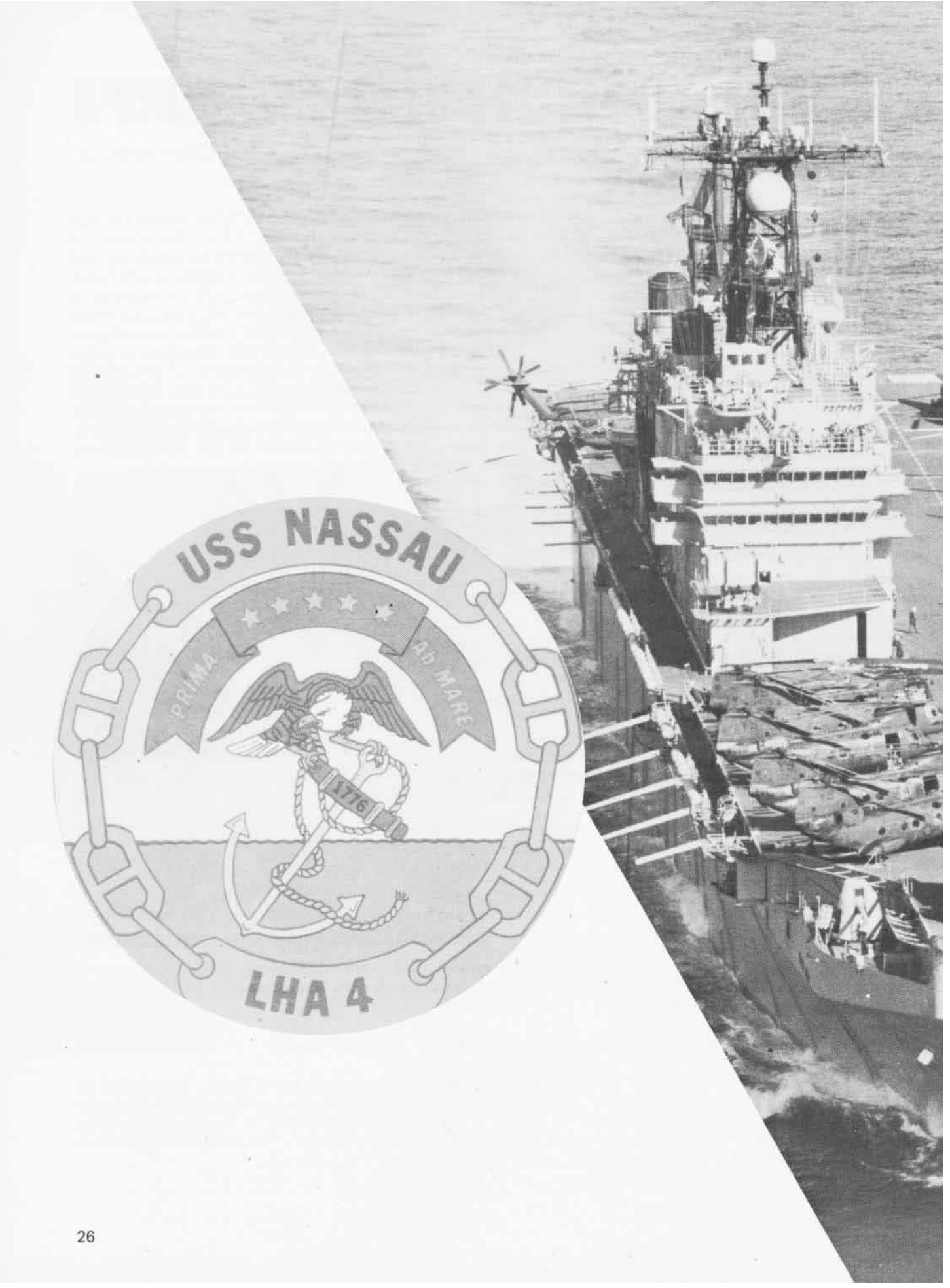
"I got out a few years ago for many of the same reasons given by lieutenants today. There wouldn't be the administrative burdens, the policies that I thought were unreasonable, people in positions of authority with whom I did not agree, etc. I knew I would always be home for holidays and children's birthdays. My job would be interesting and challenging, and would give me a feeling of self-worth. Surely I would find camaraderie among fellow employees as I did in my squadron. The president of my company would certainly be as concerned about my welfare as my skipper.

"How can one be so naive? After having been out, even as a corporate pilot I know the grass isn't all that green on the outside. Since my return to active duty, I have found many people, concerned about the aviator in particular, who are working constructively to improve Naval Aviation in general. I wish it were possible to give our second-tour

aviators a six-month sabbatical to see if the civilian world really meets all their expectations. I found out that it doesn't."

Flight Pay/Bonus Sitrep

The Office of the Secretary of Defense has endorsed the joint services legislative proposal (see *NANews,* November 1979, p. 27) and has forwarded it to Congress via the Office of Management and Budget. The proposal is expected to reach Congress in January 1980.

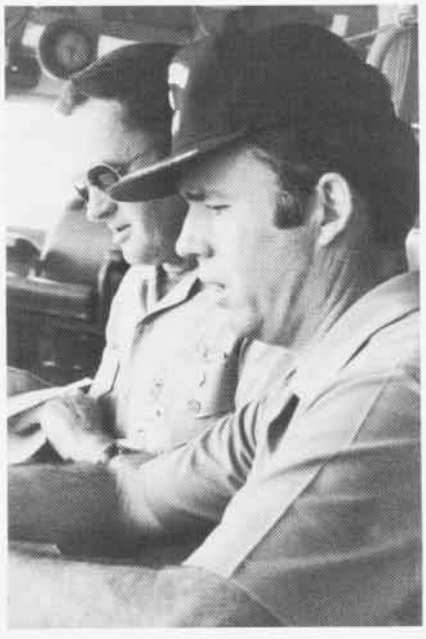

USS NASSAU
PRIMA
AD MARE
1776
LHA 4

Tarawa-class ships receive their names from historic Marine Corps operations. USS *Nassau's* derives from the first American amphibious operation – the landing made by the Marine Corps on New Providence Island in the Bahamas to capture Fort Montague and Fort Nassau from the British during the American Revolution.

The first, and perhaps even the second, of a new class of ships usually makes its debut with much fanfare, but by the time the third and fourth of the line come along, public notice is scant. USS *Nassau* (LHA-4), fourth of the *Tarawa* class, was commissioned on July 28, 1979 in Pascagoula, Miss., arrived at her home port in Norfolk, Va., early in August and joined the Atlantic Fleet with a minimum of flourishes.

During her five-day transit to Norfolk, *Nassau* carried on board HMM-263

PHC Tom McManus



Photos by PHC Tom McManus

Top left, clockwise: Scene at commissioning ceremony; C.O., Capt. William A. Kearns, Jr., on bridge with operations officer, Cdr. D. S. Dwyer; helo lands, as seen from island; sailor at engine controls. Far right, helo turning aboard Nassau en route to Guantanamo Bay.

MCAS New River, N.C. The squadron's H-46s kept the new flight deck busy as they conducted air operations.

Nearly three football fields long and displacing about 40,000 tons fully loaded, the 20-story-high ship has a crew of about 800 officers and men, and can carry 1,800 combat-ready Marines, their helicopters, jeeps, tanks, artillery, supplies and other assault equipment. She is able to embark, deploy and land a Marine assault force by helicopter from the flight deck, by small landing craft from the flooded stern well deck, or a combination of the two. She successfully demonstrated this capability on her shakedown cruise to Guantanamo Bay, Cuba, during a reinforcement exercise in the fall of 1979.

Nassau deployed with four Marine squadrons of the 38th Marine Amphibious Unit which she embarked at Morehead City, N.C.: HMH-461, flying H-53s; HMM-162, H-46s; HMA-269, AH-1Ts; and HML-167, UH-1Ns. En route to Cuba, she logged her 1,000th landing on October 13, only two and one-half months from commissioning. Three hundred and twenty-four landings were logged on another day of stepped-up air operations.

The Marines, accustomed to more spartan quarters, praised *Nassau's* comfortable accommodations. She was designed and built with the health, safety, comfort and convenience of people in mind. A high degree of automation and many worksaving systems

Air ops en route to Cuba.

have been incorporated into the ship. Most cargo is moved with ease automatically on a system of conveyors, transporters and elevators. Trucks can drive on ramps from one deck level to another.

The ship is equipped with an ample air conditioning system and a 5,000-square-foot acclimation room with temperatures and humidity simulating the climate in which troops will be operating. The boilers can provide whatever fresh water is needed and there are three sewage treatment plants. Berthing spaces have privacy partitions, clothing storage spaces, and recreation tables and chairs nearby. New colors, materials and floor plans create a bright, cheerful atmosphere. There are up-to-date food handling services, rec rooms, a hobby shop with a photo lab, and many other conveniences.

Foremost is safety. Along with flame-resistant fabrics, paints and other materials, there is an extensive fire and damage control system that continuously monitors ship sensors and instantly signals the location of any hazard.

Nassau has joined the fleet as one of the newest ships in the U.S. Navy, bringing to the operating forces an amphibious capability and versatility for carrying out the mission of the Navy-Marine Corps team.

"When the builders have finished with a new ship she is still an inanimate thing. . . .When her crew steps aboard, the ship comes to life. The skipper, the officers and each man in the crew, all loan her a piece of their souls, to keep as long as they serve in her. These little pieces added together make up the soul of a ship and change her from so many tons of cold metal to a warm, living and breathing member of the seagoing community of ships. Some people think that despite all our modern scientific knowledge, man will never learn how to put life into inanimate matter. Seafaring men have been doing this for centuries."

Daniel V. Gallery
Rear Admiral, USN
-1945

During the transit from Pascagoula to Norfolk, USS *Nassau* counted a female in her crew, one SN Harvey, U.S. Naval Reserve, on active duty. SN Harvey was a good seaman but, being only four months old at the time, she demonstrated a definite lack of self-control in the wrong places, at the wrong times. An executive officer's mast was held, but the case was dismissed because SN Harvey was a minor. She is now on shore duty in Norfolk.

NIGHT ATTACK

By Lee M. Pearson

First of two parts.

The darkened task force glided through the central Pacific as a quarter moon peeked in and out through the broken clouds. Below decks, officers and crewmen tried to forget their deep penetration into the Japanese Imperial Empire and to relax their weary bodies and sleep. They needed rest for the work they knew would be demanded in the morning. Above decks and in combat information centers, watch officers and lookouts were alert while radar scanned the sky on guard against night-prowling enemy planes. That day, February 16, 1944, aviators of the task force had had their first look at the Japanese stronghold of Truk as they bombed airfields and other military installations while braving a deadly barrage of antiaircraft fire.

Aboard *Enterprise*, aviators and aircrewmen of Torpedo Squadron Ten were summoned from their bunks about two hours after midnight – 0215, February 17. After a hearty breakfast, they assembled in the ready room and waited until it was time to man their planes. Their skipper, Commander William I. "Bill" Martin, made a last-minute review of the strike plan he had disclosed to his airmen in an hour-long meeting just before sack time. His left arm was cradled in a sling, the result of a fracture incurred when he had fallen onto the steel deck of the forecastle while doing calisthenics a few days earlier. He was grounded and could not lead his squadron in its first combat demonstration of night, radar-guided bombing. For more than 12 months the theory of night attack and the development of doctrine and tactics to transform the theory into reality had been uppermost in his mind. Now, at the crucial first test, he had to content himself with encouraging his pilots and radarmen to trust the training he had given them and to execute a plan that he had carefully developed.

Under his watchful eyes, the pilots moved to the flight deck, manned their planes and started engines. The 12

VT-10 flew Avengers like these.

Following the war, Bill Martin became a test pilot, commanding officer of the carrier Saipan, and executive assistant and senior aide to the Chief of Naval Operations, among numerous other assignments. He was promoted to rear admiral in 1958 and to vice admiral in 1967. He was Commander U.S. Sixth Fleet and Deputy Commander in Chief of the Atlantic Fleet. Vice Admiral Martin retired, after nearly 37 years of service, on February 1, 1971.

TBF-1Cs were standing at catapult position, fueled, armed with four 500-pound bombs each and waiting to go. When the radarmen checked the ASB-7 radars, Ensign Gibby Blake thought that he would be left behind because (as he recorded in his personal diary) two of the planes were down. Radio technicians quickly replaced the malfunctioning set and radarman Barron reported that it worked. As Blake put it, "At the last minute, one was up."

Lieutenant V. Van Eason, flight leader, taxied onto the catapult and was launched at 0400. The others followed in quick succession. In a few minutes, the lumbering planes were all airborne. They rendezvoused in a loose formation aided by the flight leader's landing lights, as well as the glow of his engine exhaust. At about 500 feet altitude, they winged their way towards the Truk atoll, some 100 miles distant.

About 30 minutes out, the radar operators began picking up blips on their screen which they identified as Truk. The formation divided into two elements: Van Eason with five planes circled off Northeast Pass while the remaining seven headed to the reef's northwest corner. As they arrived at their initial points, the radarmen reset the "yagi" (a crude, directional, shortwave antenna) from abeam to ahead – from search to homing. After circling, the planes left the formation – one at a time, at intervals of one minute – to attack shipping in the Eten and Dublon anchorages.

Each approached the anchorages in turn at 250 feet and 180 knots. The radar operator picked out a particular signal and coached the pilot left or right until the blips from the left and right antennas were equal in strength. As the target blips merged with the sea return on the radar screen, the radar operator counted off three seconds: "One alligator, two alligator, three alligator. Mark!" More often than not, before "Mark!" was reached, the pilot could distinguish the target. Sometimes it proved to be a small islet and the pilot would break off his run, circle back and let the radar operator choose another blip. The evolution would be repeated. At other times a blip from the target simply merged with the blip from an islet. But the last-second sighting gave the pilot opportunity to adjust his course and visually select the point of release. Most pilots found that the radar operator's "Mark!" was a useful guide even when they used visual cues to select the drop point.

At the selected moment, the pilot released two of his 500-pound bombs. If everything was properly executed and worked as planned, the bombs struck the side of the ship at the waterline and pierced its thin skin. If a bomb fell short, it ricocheted into the ship. The bomb exploded four to five seconds after its initial impact. By that time, the plane had passed over the target and was a quarter of a mile distant, permitting the crew to observe the results. The pilot then circled back and attacked a second target with his two remaining bombs.

Perhaps jittery as a result of the strikes of the day before, the Japanese picked up the attackers before the first bomb was dropped. A hospital ship turned on all its lights, while a flare called the defenders to their antiaircraft stations. The attackers, throughout the 20 or 30-minute fight, encountered an increasing volume of antiaircraft fire. Enemy gunners had trouble picking up the planes in the dark and their fire was generally inaccurate until after the bomb was dropped. Then the glow of engine exhaust, the result of inefficient flame dampeners, gave them an aiming point. Even so, the fire was much less intense than it had been during the daylight strike of the preceding day.

When each plane had delivered its bombs, the pilot returned to the rendezvous point southeast of the atoll. From there, either singly or in small groups, they returned to *Enterprise*. Many planes returned untouched. A few bore the marks of heavy antiaircraft fire. One failed to return and was adjudged the victim of antiaircraft fire.

At the debriefings, it was determined that 13 direct hits were scored. Eight merchant ships were destroyed or sunk and five were damaged. Seven other bombs exploded "within a beam's width" of the target. They were listed as probable hits. Gibby Blake wrote, "VT-10 really did O.K. this a.m." To Bill Martin, that first night attack from a U.S. Navy carrier was vindication of a theory of night warfare he had gradually formulated during his nearly six years as a Naval Aviator.

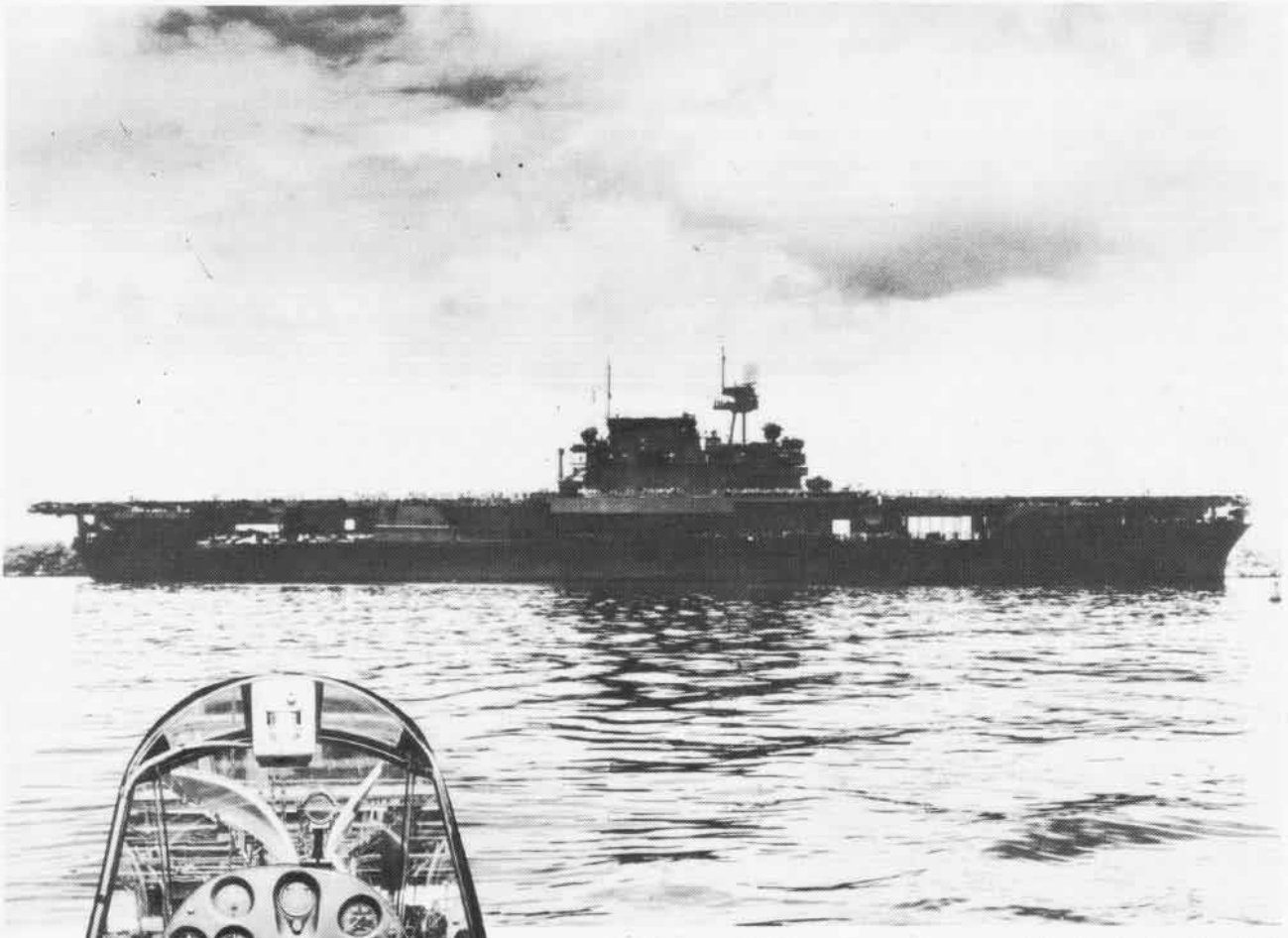
Martin grew up on a ranch in southwestern Missouri where he hoed many a cornfield on hot summer days. As a youngster, he became interested in aviation. With a thoroughness that was to mark his approach to all problems, young Bill began reading everything about aviation that he could find. As a consequence, he became particularly interested in carrier flying.

After a year of pre-med at the University of Oklahoma and a second at the University of Missouri, Bill wrote to his congressman, Dewey Short, and requested an appointment to the Naval Academy. The congressman offered him an appointment to West Point if he was really serious, but was less encouraging about Annapolis because there was more competition. Martin persisted, and took the competitive examination. He recalls that he received the appointment even though he barely passed. All of the other applicants failed. He entered the Naval Academy in 1930.

Martin graduated in 1934, near the middle of the class, and served two years on the battleship *Idaho*. Just before battle practice competition in his second year aboard, his superior in the gunnery department, who was to serve as spotter for the main battery, was injured. Martin had to fill the breach and *Idaho* placed first. He subsequently applied for flight training but his commanding officer, impressed with Martin's skills in the ordnance field, declined to forward the application in order to keep him aboard *Idaho* for a third year.

Finally, in June 1937, Martin made it to Pensacola for flight training. A year later, he received his wings and joined Scouting Squadron Two aboard *Lexington*.

Martin became intrigued with instrument flying while at Pensacola, even though most accounts of flight training in that period emphasized the *Hell's Angels* approach: bold young aviators stunting and flat-hatting; or flying low over cabanas to catch a glimpse of sunbathers; even diving under



VT-10 operated TBFs similar to this one, top left. Smoke rises from Truk following a day strike on February 16, 1944, top right. Above, USS Enterprise, 1944. Inset, cockpit instrumentation in the days before WW II was basic, as reflected in this interior view of a Curtiss SBC-3.

bridges or flying between rows of trees to demonstrate spatial sense, coordination and timing. He was 28 when he received his wings in the summer of 1938 and concedes that part of the attraction of instrument flying was that it represented the ultimate form of flat-hatting. Skill and coordination were pitted against the elements in a way that most pilots could not duplicate.

Both at Pensacola and, later, in VS-2 Martin was to find that very few Naval Aviators, especially those who flew from the carrier, were comfortable with instrument flying. He knew that night and instrument flying were almost as old as Naval Aviation and had played some role in WW I. He was also aware that in the famous NC-4 Atlantic crossing in 1919, only one out of three NC boats which began the flight successfully pierced both night and fog to complete the leg from Newfoundland to the Azores. He may also have known that both the Army and the Navy had pioneered in radio navigation, and that Army radio ranges, first installed at McCook Field, Dayton, Ohio, had provided the basis for the radio ranges which became essential for commercial flying. He undoubtedly was impressed by the fact that commercial flyers were much more adept at night flying than were the Navy pilots, who regarded their ability to make one safe carrier landing after another as the ultimate demonstration of flying skill. He probably also knew that, despite the Army's and Navy's long, sporadic history in night flying, night and instrument flight had really been developed in the late 1920s and 1930s by commercial pilots.

Martin has few specific comments regarding his two years with VS-2. He did make an annual instrument qualification flight under the hood and an annual night landing under a full moon shortly after sundown. *Lexington* may have been unduly conservative. During 1937 fleet exercises, a year before Martin came aboard, the ship and aircraft were hampered by bad weather. *Lexington* launched its planes and had to recall them. *Ranger*, which had refused to take chances with the weather and waited until the skies cleared to send off her planes, was on the winning side. Hence, it seems reasonable that the *Lexington* squadrons, having had their fingers burned once, were staying away from the fire.

Martin was determined to become an instrument flyer. Being intensely interested in carrier aviation, he apparently never considered going into patrol planes where some instrument skill was necessary and where most naval instrument and night flying was done. Part of his thinking was that if commercial and patrol plane pilots could fly instruments, there was no reason for carrier pilots to settle for the 5 to 15 minutes of blind flying which was all that most of them could manage. Thus, at the end of his two-year cruise on *Lexington*, Martin requested and received orders to Pensacola as a flight instructor.

Upon his return to Pensacola in May 1940, Martin discovered that guile was required just to get assigned to instrument flying. The first opening was for a primary flight instructor and only through a conveniently arranged illness did he manage to remain in limbo until there was an opening for an instrument instructor. Later, when such instructors were needed at NAS Corpus Christi, he was reassigned to that station. He thus became chief flight instructor in the instrument squadron.

It was during the Pensacola and Corpus Christi tours that Martin became fully conversant with instrument flying. The method then used by both the Army and the Navy was described in the vernacular of the day as the 1-2-3 method. More accurately, that meant needle, ball, airspeed. During instrument flight, primary reliance was placed on three instruments. The needle was a gyroscopic rate-of-turn indicator. The ball was a steel ball (a sophisticated form of spirit level bubble) which was centered when the angle of bank was correct for balanced flight either straight or turning. In accordance with the 1-2-3 method, it was used in conjunction with aileron movement. The airspeed was simply the airspeed indicator reading and, under normal conditions, if it was constant the plane was in level flight. Airspeed was controlled by the elevators and nose attitude of the aircraft. Instrument flying depended upon a continuous, mental integration and coordination of the three instruments. This required full attention and strong mental discipline because seat-of-the-pants instincts had to be ignored and rigorous logic had to be applied to the indications of the three primary instruments.

By 1940, most commercial pilots were using either the attitude or the full panel method of instrument flying. For normal flight, primary reliance was placed on a gyro horizon which indicated aircraft attitude, and a gyrocompass which indicated heading. Pilots found that this was much less strenuous than the earlier 1-2-3 method. It allowed them to scan other instruments and take full advantage of them. One trouble was that the gyro horizon and gyrocompass were not very reliable; they tumbled during maneuvers and drifted during normal flight. This was considered serious enough that for several years the civilian Bureau of Air Commerce and its successor, the Civil Aeronautics Authority, required that commercial pilots earn their instrument cards by using the 1-2-3 method, even though they were encouraged to use their full panoply of instruments during normal instrument flight. If a pilot became disoriented, needle, ball and airspeed offered the only method of recovery. Therefore, they were considered the most basic instruments.

By the late 1930s, for example, the gyro horizon was being installed in new naval aircraft but was masked over. Carrier pilots (and presumably other military and naval pilots) were not allowed to use it. They were expected to stick to basics because of their limited skill in instrument flying and because the gyro horizon was less than 100 percent reliable.

Commercial airline pilots had found that instrument flying was greatly simplified when the gryo horizon and gyrocompass were utilized. Many of these pilots held reserve commissions and were recalled to active duty during the military expansion of the late Thirities and early Forties. Martin was indoctrinated in attitude instrument flight techniques while at Corpus Christi. Two former

TORPEDO SQUADRON TEN

The men of VT-10.

airline pilots, Lieutenant Colonel Karl W. Day, USMCR, and Lieutenant Ward Davis, USNR, thoroughly explained the attitude techniques to the instructors.

Day had been chief flight instructor for American Airlines and in the mid-Thirties had written an instrument flight manual in which he said that if he were teaching his own son to fly, he would teach him instrument flight first and then contact flight as a variation. In February 1941, Day had reported to Rear Admiral W. F. Halsey, Commander Aircraft Battle Force, to explore the possibility of making offensive flights in bad weather. Finding that the carrier squadrons had no instrument flight capability, he went ashore with a squadron at Coronado for a month. He discovered that the pilots were afraid to fly instruments because, if the instruments failed, they had nothing to fall back on. In early 1942, Day was assigned to the training division, Bureau of Aeronautics (BuAer), under Captain Arthur W. Radford, to develop the instrument training aspects for the new Naval Aviation training program which U.S. entry into WW II necessitated.

Day and his associates were important in getting attitude flying officially incorporated into the flight syllabus. This was done by Technical Order 47-42 of June 18, 1942. It directed "that instrument flight training and practice be based on the use of the full instrument panel. . . ." Parenthetically, it may be appropriate to observe that the Army Air Force adopted an almost identical policy some months later. As part of the new approach to instrument flying, Day organized a school to train instrument and radar instructors at Atlanta.

At Corpus Christi, Martin quickly grasped the benefits of attitude instrument flying. Not having a manual, he and some of the other instructors prepared their own. He apparently did more than that, since at the end of 1942 he wrote that the attitude method had been introduced the preceding April.

Martin's tour at Corpus Christi must be judged as the time when his views on night warfare crystallized. Simply by reading the daily newspapers he knew that the Germans had turned to night bombing of England once the Royal Air Force made daylight attack too expensive. He also knew that the RAF was retaliating with night bombing of German-occupied Europe. Thus, as he learned a relatively simple form of instrument flying, he became convinced that the U.S. Navy should utilize it in the war in the Pacific. In the spring of 1942, he learned that the highly secret and generally mysterious field of radar was not limited to surface installations. Airborne radar already existed and was in everyday use. He later described his reaction: "Visualizing what could be done with a group of skilled instrument pilots using radar, I got starry-eyed."

It is appropriate at this point to review some of the key steps in the development and installation of airborne radar. In July 1941, British antisurface vessel (ASV) radars were installed in PBY-5 and PBM-1 flying boats of Fleet Air Wing Seven, at that time operating neutrality patrols in the North Atlantic. In August, a shortwave (10 cm) radar, developed by the Radiation Laboratory of the Massachusetts Institute of Technology, was installed in an XJO-3 and given its first airborne tests at the Boston airport.

Radar for carrier planes also came under consideration. In August 1941, the Chief of BuAer approved a plan to install radar in naval aircraft. The first part of the plan was a post-facto approval of the flying boat installation then being made and an expansion to include the ASA which was an American production version of the ASV. The second part called for installation of the ASB, which was under development at the Naval Research Laboratory, in torpedo planes and scout dive bombers. On December 9, a step was taken towards implementing this latter aspect of the plan when the Secretary of the Navy approved procurement of a service test quantity of 25 sets of the ASB. These were delivered in the next few months and, by October 1942, 25 sets of the improved ASB-3 had also been delivered and installed in TBF torpedo planes and SBD dive bombers.

The Navy also became interested in night fighter radar. In September 1941, BuAer requested development of an interceptor radar suitable for installation in a single-seat fighter. On April 18, 1942, a Night Fighter Development Unit was established at NAS Quonset Point under the command of Captain E. J. "Jesus" Taylor, USNR, who had had night fighter experience with the British in 1941.

The failure to transmit and exploit superior tactical intelligence was but the first of many mistakes during the battle. The first of the might-have-beens of the battle was that if the U.S. carriers had possessed a night search capability, that first error might have been avoided.

In July 1942, Martin was detached from NAS Corpus Christi and ordered to Scouting Squadron Ten aboard *Enterprise*. He joined the squadron at Hawaii, while the ship was in the yard at Pearl Harbor for repair of battle damage received during the Battle of the Eastern Solomons. While in the yard, her air group reformed and trained at air stations in the Hawaiian area. Commander Richard K. Gaines became commander of Air Group Ten; Lieutenant Commander J. R. "Bucky" Lee, commanding officer of

VAdm. Martin with friends near his Mount Vernon home, 1979.

VS-10; and Martin, Lee's executive officer.

Enterprise returned to the South Pacific just in time for the October 26th Battle of Santa Cruz. The outcome of that melee is generally considered a U.S. defeat since *Hornet* was sunk and *Enterprise*, the only remaining U.S. carrier in the South Pacific, was seriously damaged. The Japanese lost most of their carrier pilots and two of their carriers were damaged. For the purposes of this article, there is no point in discussing the details of the battle. But it is significant that American PBYs, using their radars, trailed the Japanese forces during the night of October 25-26. Two of the planes even attacked Japanese ships. One obtained bomb hits on a Japanese carrier. The other made a radar-directed torpedo attack on a destroyer. It scored a hit but the torpedo had been dropped too near the target and failed to arm. The pilot saw it bounce harmlessly away. Information obtained by the flying boats on the location and composition of the Japanese forces did not reach the American carriers in time to give them an advantage.

The damaged *Enterprise* moored at Noumea, New Caledonia, on October 30, 1942, four days after the battle. That same day, Martin submitted a proposal for the establishment of a single-plane, carrier-based reconnaissance unit. He recommended that the plane be equipped with the best possible radar and radio, adequate defensive gun power and reliable instruments and cameras. He recommended that it also be capable of carrying a 500-pound bomb. He argued that a competent unit could provide weather information, investigate aircraft sightings, amplify contact reports, locate the enemy and make initial attacks, direct the attack by other planes at the scene of action, serve as navigator and guide for night operations, perform photographic missions, and make utility and messenger flights for the task force commander.

The timing of that recommendation, four days after the Battle of Santa Cruz, does not appear particularly significant. During those four days, damage control parties toiled aboard the ship while the squadrons and air groups were involved with post-combat debriefings, combat and casualty reporting, aircraft repair and simply unwinding from the tension of the battle. These considerations, and the fact that Martin's recommendations did not refer directly to that battle, strongly suggest that his recommendations were drafted before the engagement began, and that October 30 was the first time that a busy yeoman had time to type it. Martin agrees with that analysis and adds that he was only trying to get something started.

There was one plane aboard *Enterprise* equipped with radar and, even before the battle, he had developed a plan for its use. The aircraft was a TBF-1 equipped with an ASB-1. It was assigned to the air group commander, R. K. Gaines. Its radar was the first airborne type that Martin had a chance to examine and, as he later recalled, he was shocked to find "that the radar did not present a colored picture of the terrain ahead, underneath and all around, that it merely presented blips on a scaled screen." Despite that, it gave the air group a latent capability for night work. That capability influenced the timing of Martin's recommendation.

Throughout the period that *Enterprise* was in the South Pacific, Martin made several recommendations involving the exploitation of radar in night air warfare. In each of these, he proposed to work with the resources at hand and provide the Navy with an immediate capability.

The first step was to determine the capability and limitations of the radar. Making the radar operational was beyond the skills of the air group's radiomen. No one had had any experience with airborne radar and there were no manuals for either operation or maintenance. There was, however, one man aboard the ship with the necessary skill to assist.

When *Enterprise* left Pearl Harbor, a young Pacific Fleet radar officer by the name of Henry Loomis was embarked primarily to instruct the crew in operating and maintaining the new SG radar which was installed aboard. Loomis had grown up in a science-oriented family. His father, Alfred Loomis, was head of the radar division (Thirteen) of the Office of Scientific Research and Development and was thereby over the Radiation Laboratory at MIT where most U.S. radar research and development was under way. Henry Loomis entered the Navy in 1940, attended midshipmen's school at Northwestern University and was assigned to the Pacific Fleet as a communications watch officer. One day he decoded a message announcing the formation of a radar school at the Naval Research Laboratory. When Henry delivered the message to his superior, his application to attend the class was attached. In 1941, he attended the first class in the Naval Research Laboratory's radar school, and returned to the Pacific Fleet as a radar officer.

Loomis volunteered to assist Martin in determining the ASB-1's capability. He disassembled it to find how it worked, and then reassembled it and installed it aboard the plane. He and Martin spent many hours flying with the radar in the TBF-1. Although the antenna controls were awkward, they could be used to determine the bearing of a target. They found that the radar would pick up the shoreline when they were off Espiritu Santo or New Caledonia. With practice, they learned it was possible to interpret the blips and identify particular rock formations. They also made low-altitude runs against rock formations and estimated the moment of bomb release so that there would be a good probability of a hit.

By December, Martin and Loomis had 15 hours of experimental radar flying time. They discovered that the radar would pick up battleships or carriers at ranges of 16 to 20 miles; destroyers at 10 to 12 miles; and land at 20 to 42 miles, depending on the terrain. The radar detected small amphibious vessels at 10 to 15 miles even though the pilot could not see them visually until he had been coached in to 5 to 8 miles. They concluded that the radar would search a swath 32-40 miles wide for a force in the open sea and could see through clouds. By that time, VT-10 had received half a dozen new TBFs equipped with ASB-3s. These had an improved antenna control which promised to give more accurate bearings than the ASB-1.

(to be continued)

Letters

Wings

I think the time has come to change the design on the inside back cover of your magazine. I am referring to your displaying only Naval Aviator and NFO wings. What about the enlisted aircrewmen? Those *Wings of Gold* are just as sought after and highly cherished as the others. I am sure I speak for many qualified aircrewmen on this issue. So, how about it guys?

AT2 Michael C. Mansfield
VP-92, NAS South Weymouth,
Maine 92190

NANews: The editors would like to hear from other readers on this subject.

Correction

I would like to point out a discrepancy which appeared in the November 1979 issue. The picture on page 15 of the helicopter turning is that of a UH-2C *Seasprite* belonging to HC-2, and not a *Sea King* as indicated by the caption.

Lt. John R. Seaberg, USN
Sixth Company Officer
U.S. Naval Academy
Annapolis, Md. 21402

NANews: Lt. Seaberg is correct. Additionally, we erred in that the photo is not current. HC-2 has been disestablished.

Looking Back

I read your article about Naval Aviator retention and it took me back 60 years. In the wake of the armistice at the end of WW I, many young men who had acquired wings as naval reservists decided they'd like to make Naval Aviation a career. They elected to stay on active duty and sought to confirm their commissions by qualifying in the regular Navy. I was one of them.

Early in 1919 I was on duty at Hampton Roads and initially happy with my assignment in the test division. But I was one of many competing for a dwindling number of choice assignments. Soon I was sunning myself on a bench outside headquarters, waiting for any kind of flight duty.

I had reported for duty the first week of January. My log lists six hours of flying in the next week, but from then until the end of January I made one round-trip flight between Hampton Roads and Anacostia, for a total of three hours flying time. I wanted to fly and there were opportunities – but not enough to meet the demand.

I have researched Commander Reginald Arthur's *Contact* (a book on Naval Aviator careers) for WW I reservists who became part of the regular Navy. I have found less than a dozen, most of whom made the transfer in 1921 and 1922. Many waited out the four years of their original enlistment before formal discharge. I suspect that many of the latter, like me, wanted to stay in the service but the inactivity of that active duty period was too frustrating.

A few of us bought WW I surplus planes and satisfied our yen for flying by barnstorming for a few years. At $5 a head and one at a time, it was a losing game!

Henry P. Lewis
Historian, Early Naval Aviators Assoc.
Upper Church Street
Ware, Mass. 01082

Info Needed

I am trying to compile information on the development and operational employment of the much maligned Curtiss SB2C *Helldiver* and should like to hear from former crewmen or maintenance men who might be able to help. Any material for short-term loan, such as unofficial histories or photographs, would be much appreciated. Donors would be reimbursed for any expenses.

G.F.P. Kernahan
26 Cleveland Road
Uxbridge, Middlesex, England

Retention

In reading numerous articles on aviator retention for the past several months, I have noticed the prevailing impression that pilots of the Naval Air Reserve are flying more hours each year than their active duty counterparts. Naval reserve fighter squadrons are funded at a level which will provide 130 hours per pilot per year, a mere 30 hours above the established minimums of OpNavInst 3710.7. If in fact the fighter pilots in fleet squadrons are flying less, and I can't believe they are, then we have an incredible readiness problem in addition to that of retention.

LCdr. J. M. Stillinger, USN
CNavRes
New Orleans, La. 70146

Helicopter Association

The Navy Helicopter Association invites representatives of industry and the military to submit papers for presentation at its annual convention in San Diego, Calif., in June 1980. Papers of both general and limited interest will be welcome on any subject related to helicopters and multimission VTOL, and should not exceed 30 minutes. Audio and visual aids will be provided. Abstracts should reach the Navy Helicopter Association, HSL-35, NAS North Island, San Diego, Calif. 92135, not later than March 30, 1980. Authors of selected papers will be notified by April 15, 1980.

LCdr. G. H. Dawson, USN

Uniforms for Belgium Museum

The Air Museum, a section of the famous Belgium Military Museum, is looking for the complete flying gear of a WW II Navy or Marine Corps pilot. Some old pro would be very proud to see his old flying suit, Mae West, boots, etc., displayed on a mannequin in one of our showcases. The donor's name will be noted on the display. Please contact:

Col. M. C. Terlinden
Musee Royal de L'Armee
Section Air-Espace
Place du Cinquantenaire 3
B1040 Brussels, Belgium

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NAS Norfolk-based Carrier Airborne Early Warning Squadron 122 is commanded by Commander B. G. Roberson. Established on April I, 1967, the squadron presently flies E-2C Hawkeyes. Its mission is symbolized by the insignia's depiction of a hawk seeking out and finding aircraft approaching a carrier.

naval aviation news