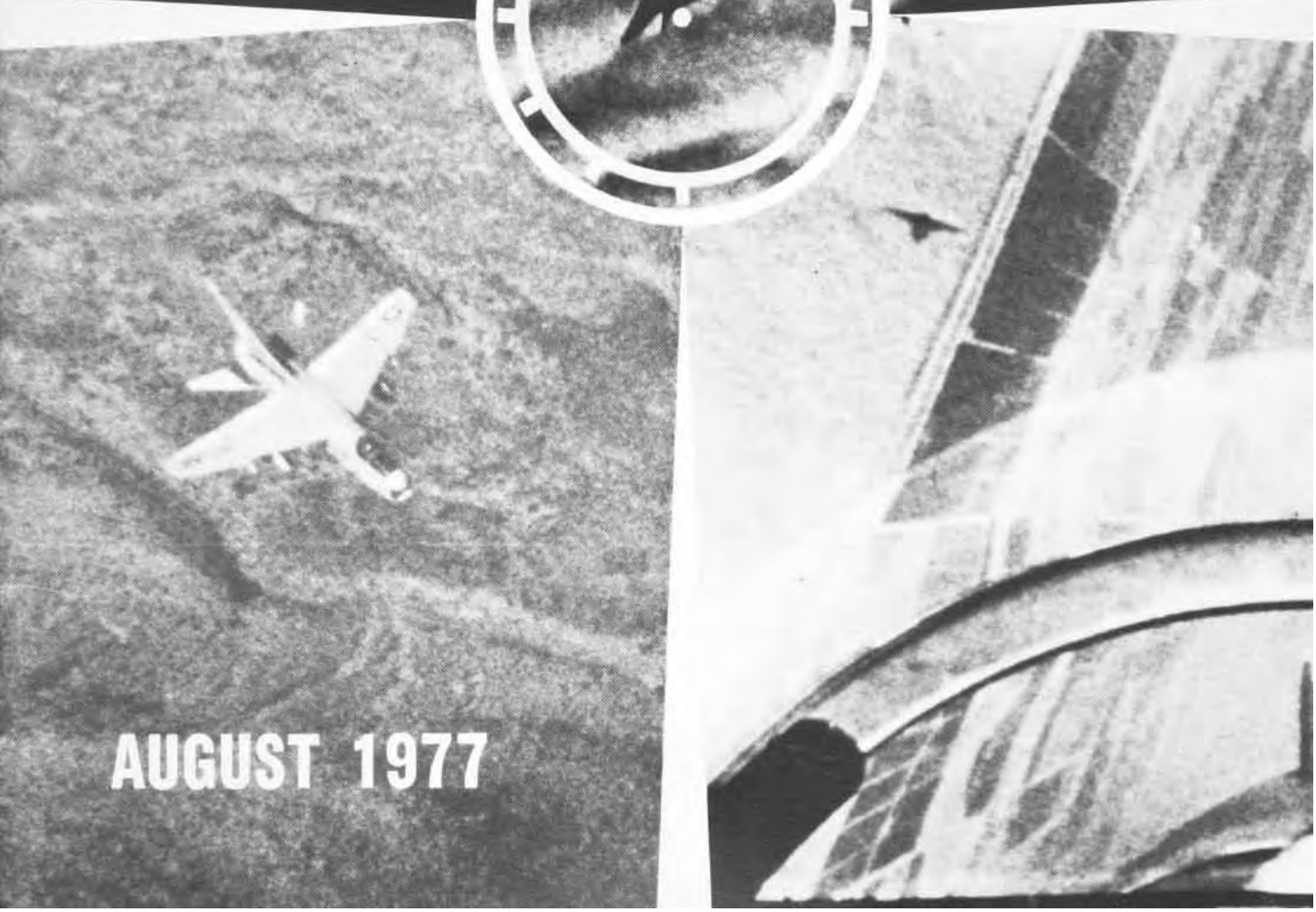
NAVAL AVIATION

NEWS

Air Combat Maneuvering...

Yo Yos
Bogies
and Such



AUGUST 1977

NAVAL AVIATION NEWS

FIFTY-NINTH YEAR OF PUBLICATION

COVERS – Front cover design by NANews' Charles Cooney. Cdr. R. Rausa filmed VA-127's Rocco Walker, upper right, eyeballing a VA-113 A-7, lower left, during DACM hop. See feature beginning on page 17. Other cockpit view of air-to-air action with Top Gun plus Phantom in the gunsight, courtesy of Ed Reilly and Northrop Corporation. Feature starts on page 8. Northrop also provided view of Top Gun F-5E upward bound off California coast, back. Here, view of E-2C courtesy of Grumman Aerospace Corporation.

editor's corner

Briefing, 1931 Style. Sure, the planes go faster and higher today. Most are air-conditioned and comfortable. And they certainly have more buttons to push, more technology to help accomplish the mission. There's something about this picture, though, which lures one back to yesteryear, with envy. As one senior flyer put it, "I'd give a month's pay to be in that huddle and get airborne with those fellows." The pilots, from VF-3, were talking things over before a hop in August 1931.

The One Thousand Patch Club. Steve Ginsberg has finally made it. He's become a full blown — and, to our knowledge, the only — member of the 1,000 Patch Club. Steve's avocation was chronicled in *NANews*, May 1974. He had 600 insignia then and had written 2,500 letters in his quest

for squadron, ship and unit patches. Said Steve about the latest milestone, "As you know, there's a cake-cutting ceremony for any 1,000th event for aviation-type ships. As it turned out, I received my 1,000th patch on my birthday, February 15. I am now up to 1,048 patches. My wife, Cheryl, baked a lovely black and white cake and we celebrated. LHA-1, USS *Tarawa*, by the way, was the 1,000th patch received. I would still like to hear from the ships, squadrons and commands which have not yet answered my requests."

A Man and His Plane. AMH1 Charles Welch was an airman in 1960 fresh out of A School when he reported to VR-24, then located in Port Lyautey, Morocco (Kenitra). The squadron's first C-130F, BuNo 149790, was received shortly thereafter. In March 1977 Welch was in VR-24 when Det Rota saluted the same aircraft. Turns out that 149790 is still around and going strong. It has accumulated more than 16 thousand flight hours, been landed over 8,300 times and gone through seven complete overhaul cycles. In 1974, while in VR-24, the C-130 received new wings. Welch, also on board, was assigned to the depot level maintenance activity to assist in repairs. He is a flight engineer in the Det which is known as the "World's Biggest Little Airline" and has logged 5,000 *Hercules* hours. "For 15 years of faithful service," read the icing on a special cake. It was dedicated to both AMH1 Welch and #149790. Commander D. A. Hof-

ford, officer in charge, and Commander G. Wigfall, assistant officer in charge, help Welch with the cake.

How's Your Recognition? PH2 Paul Wilvert of VP-65 got out some of his special photographic equipment and filmed a pair of his unit's P-3s on a mission. Based at NARU Point Mugu, the squadron now has a "chubby" look.

NAVAL AVIATION NEWS did you know?

ASW Digital TV System

Eleven new subsystems that electronically display tactical information needed by aircrews on ASW flights have been delivered to the Navy by Hughes Aircraft Company. Seven of them are operating aboard carriers. They were developed under an NADC Warminster, Pa., contract as part of the aircraft carrier tactical support center (CV-TSC) system.

The Hughes equipment uses digital television techniques to present data for preflight briefings, inflight support, and post-flight debriefings of crews flying S-3As from carriers. The CV-TSC displays provide operator access to a data base for intelligence and tactical briefings before each flight and supply a means to modify that information for the crew while in flight.

The displays are high-resolution TV monitors employed in four operator positions: tactical, brief and debrief, watch and automatic data processing. Two types of display equipment are used in these positions — tactical and tabular. Both use the same TV monitor but differ in the complexity of the generating units in the central display equipment. The tabular unit presents data in text form with the appearance of a typewritten page. The tactical unit presents map-like pictures with written information located alongside the symbols. Hard copy of any data can be generated for use by flight crews or for a permanent record.

Flight Surgeons Honored

Three Navy flight surgeons, two active duty and one retired, received awards for outstanding achievements at the annual meeting of the Aerospace Medical Association at Las Vegas.

Captain Joseph Pursch received the Raymond A. Longacre award for outstanding accomplishment in the psychological and psychiatric aspects of aerospace medicine. Dr. Pursch, who has contributed many articles to *NANews*, is well known in the scientific community for his work in the field of alcohol and drug abuse. He is director of the Navy Alcohol Rehabilitation Service at the Naval Regional Medical Center, Long Beach, Calif.

Lt. Willis Martin, flight surgeon for the 2nd MAW, MCAS New River, N.C., was named Navy flight surgeon of the year. He was cited for his support of special missions in the Med and with the Marine Corps at New River. He received the Richard E. Luehrs Memorial Award.

Captain Channing Ewing, USN (Ret.), was honored with the Eric Liljencrantz Award for his pioneer research into the "human dynamic response to crash impact accelerations and basic research into the effects of surface platform motion upon ship's crew habitability." He is chief scientist at the Aerospace Medical Research Laboratory Detachment, Michoud, La.

RPV Recovery Tests

An Army, Navy and Air Force research project on alternate methods for recovering remotely piloted vehicles was recently completed at NAS Lakehurst, N.J. The tri-service steerable fabric wing project tested the flight characteristics of a mini-RPV when borne by a ram air inflated fabric wing, an adaptation of a sport gliding parachute.

The XBQM-106 produced by the Teleplane Project, Wright-Patterson AFB Flight Dynamics Lab in Ohio, has a 12-foot wing span and is propelled by an 18-hp Herbrandsen engine. Gross takeoff weight was 152 pounds. The fabric wing was selected in tests run at NADC Warminster, which also designed the attachment/fabric wing-warping control equipment.

Sustained, controlled flight was demonstrated, with three different fabric

wing/vehicle configurations. In each case, maneuverability was attained through vehicle rudder deflection, fabric-wing warping, or a combination of the two. Altitude and directional control provided good maneuverability. This was demonstrated by accurate runs on a pole-mounted target.

In this head-on view of a pass, a section of the target pole (picked up on an earlier pass) dangles from the right wing. Flash bulb detonation marks the moment the vehicle passed through the plane of the target.

The fabric wing promises to reduce velocity to well below normal RPV minimum control speed, which should simplify recovery and landing.

T-44A Flight Trainer

Beech Aircraft Corporation is building an operational flight trainer to supplement advanced training in the T-44A. Students will use the trainer to learn T-44A cockpit procedures for all standard and emergency flight operations, reducing time and costs.

The flight trainer, to be built under a $5.4 million contract, will simulate the T-44A cockpit arrangement, including all aircraft instruments, indicators, panels, switches and controls. The 2,800-square-foot installation will consist of three stations: trainer area, computer room and hydraulics room.

To make the training situation as realistic as possible, a motion system (pitch, roll and heave) with three degrees of freedom will provide appropriate acceleration and motion cues. The trainer will simulate varying degrees of turbulence, aircraft vibration and characteristic oscillations; operations such as taxiing, takeoff roll, climbout and turns; and the effects of changes in thrust, retraction of gear and flaps, and landing, including impact. It will also simulate atmosphere from sea level to 50,000 feet, barometric pressure, wind velocity and direction, environmental temperature, magnetic variation, humidity, precipitation and icing. An aural simulation system will provide cockpit sounds for all phases of flight and ground operations right down to the squeal of tires on landing.

Beech, designer and producer of the T-44A, will furnish aerodynamicist staff services, wind tunnel aerodynamics study, power plant and flight data as well as the cockpit mockup and pilot evaluation of the completed flight trainer. Construction of the simulator will be subcontracted to Hydrosystems, Inc., of Farmingdale, N.Y.

Did you know something else?

Submitted by RAdm. J. R. Tate, USN (Ret.)

Just finished reading *"A Sailor's Admiral,"* a biography of Admiral Bill Halsey. It is an excellent report on WW II in the Southern Pacific and Task Force 38 but I think there could have been more about the real Halsey.

I admire your "Did You Know" in *NANews* and thought I might give a few personal thoughts for that department starting with a few thoughts about Halsey as I knew him.

In 1935 I was detached from C.O. of VF-5 *(Red Rippers)* and ordered to Pensacola where I was assigned as C.O. of Squadron Five which at that time had about 50 F4B4 fighters and was the final squadron students went through before graduation and the pinning on of the Gold Wings. Halsey was Commandant and in charge of all Naval Air Training. The first group of *senior officers* went to Pensacola and made a few flights as passengers in planes and were issued Observers Wings — gold wings with a large O in the center.

Later, other senior officers, including Admiral Ernest King, went to Pensacola for two or three months and were flown around in F5Ls with a pilot who let them take the controls and called it solo. I am sure there were no real solo flights without a safety pilot. The Navy Department issued them wings.

Halsey announced he intended to take the entire course as any other student pilot. He wanted and expected to take all regular checks and *would* be marked as any other student.

He did it and finally arrived at Squadron Five — single seat fighters, gunnery, dive bombing, formation flying, acrobatics and night flying.

Lt. Fitzhugh Lee, operations officer, and one of the top pilots in the squadron, scheduled Halsey for an acrobatic check with himself as check pilot. Halsey fell all over the sky and never did complete a roll on top of a loop.

Fitz gave him a down check and another hour of practice. When he landed, Halsey shook his head and said, "I sure had a bad hop there." After the extra time, Fitz Lee scheduled Halsey for another flight but with Jack Raby as check pilot. The performance was better but Raby gave him another down. As squadron commander, I assigned a final hour of practice and on the final check, Fitz Lee, Jack Raby and myself all checked him and averaged the three marks. He passed with a high mark.

When he landed, Halsey was all smiles. He knew he had put on a top performance. He said it took a little time but "the aircraft sure performs when it knows who is boss."

Halsey was the *only* senior officer to my knowledge who took the same course to get his wings that any aviation cadet took. He *soloed* and by solo I mean he flew *alone* in all types and took all the regular student checks.

Halsey was Commander, Carrier Division One, Aircraft Battle Force and I was on *Yorktown* as Air Group Commander. Artie Doyle was Air Group Commander on *Saratoga*.

We went out as observers for Light Force Battle Practice. I had Halsey in the rear seat of an SB2U2 as top observer. I saw Artie pass below me and pointed him out to Halsey and said over the intercom, "Let's go get him." Halsey nodded O.K. I dove down and the two air groups had quite a scrap. Suddenly, Doyle came on the air and said, "Lay off, that was too close and I have Commander, Light Forces in the back seat and I don't think he likes this."

I replied, "Hell, I have Halsey in the back seat and he is flying the plane." The scrap then stopped.

Just after the Battle of Santa Cruz, two CVEs — *Altamaha*, commanded by myself, and *Nassau*, commanded by Doyle — arrived in Noumea. We had 26 planes each and could do 18 knots. We were Halsey's new carrier group. Artie and I called on the admiral at his shore quarters. He mentioned the light force fracas and said, "I'm not going to fly my flag on either of those two tin cans to give either of you a thrill." He was a great officer and a great man and also a *real* aviator and won his wings like the rest of us.

Did you know the U.S. had two battleships commanded by CPOs?

In Spalato Dalmatia (now Split), Yugoslavia, the Austrians turned over to the U.S. naval officers present two Austrian battleships, *Czarini* and *Radetsky*. The senior officer present appointed two chief boatswain's mates to take over. They had a crew of about 15 or 20 on each ship and had a hell of a time for about six months.

In 1929 three F2B fighters flew inverted, nonstop, from the Atlantic to the Pacific!! Double sump engines — Colon to Panama City — with trade winds, 12,000 feet, 15 minutes!!

CV-9-class carriers had forward and after bridges — the latter for use in bow landings. They made better than 25 knots astern. *Randolph* was given a call-down for exiting Guantanamo on an ebb tide while all the BBs anchored there were trying to turn around and exit bow first.

Lt. "Bubbles" Fisher, doing acrobatics over the strand south of North Island, went into an outside spin and could not recover. At 3,000 feet he shut the throttle and cut the switch and went out in his chute. He landed safely and the plane came out of the spin, righted and landed on the strand. It went slightly into the surf but several hours later a crew recovered it, started the engine and flew it back to North Island. Was Bubbles' face red!

The first night carrier landing was an accident? Mistake?

While alongside the dock at North Island, Lieutenants Harold Brow, Jake Gorton and Delbert Conley were practicing approaches for night landings. They had orders to make approaches only and then take wave-offs.

Lt. Brow came in on an approach and gave the motor the throttle to go around for another pass. According to Brow, the motor quit and he went into the gear for the first night carrier landing.

Several months later, LCdr. John Dale Price made the first "official" night landing *underway* just off Point Loma.

grampaw pettibone

Close Shave

A flight of four AF-1Es departed MCAS Cherry Point on a cross country to Pensacola via NAS Cecil Field. Upon arrival at Cecil, the flight broke into two sections for penetration and GCA to landing. The wingman was instructed to take a chase position at five o'clock, stepped up, with a 500-foot interval on final approach.

The wingman planned to fly his chase position to minimums, then wave off and enter the pattern for a normal landing, but changed his mind at about the two-mile position on final. The flight leader requested that he land on this pass and the chase pilot, realizing that he was too close, began trying to set up a landing interval by reducing power. As he attained the desired 17.5 units (angle of attack) and a fair interval, he suddenly realized that the flight leader had landed in the center of the runway and he had reduced power to the point that an excessive sink rate was established. About this time, jet wash had him in more trouble than he bargained for and the aircraft contacted the ground on the right wing tip and main mount, about 400 feet short of the runway. The nose gear sheared. The aircraft skidded 1,500 feet down the runway.

This little saga should end here but, to continue in the same vein as exhibited during the approach, the pilot encountered more trouble when he tried to abandon the aircraft. He had trouble disconnecting his oxygen and radio leads, then unfastened the rocket jet fitting. After releasing the shoulder fittings, he attempted to stand, but soon realized he hadn't released his lap fitting. Again he attempted to stand, but found the leg fittings were still intact. He sat down for the third time and released them,

then leaped from the aircraft and parted the emergency oxygen line as he did so.

Grampaw Pettibone says:

Holy mackerel! What was the great hurry to get on the ground? There is really nothin' against takin' it around and gettin' squared away for a comfortable approach and landing. This flight leader certainly helped a lot —after telling his wingman to land with him, he puts his bird smack dab in the middle of the runway. That's taking care of your buddy, but good.

One of the Board's recommendations was that, in view of the difficulty and confusion experienced by the pilot in his egress from the aircraft, the squadron immediately institute a comprehensive training program concerning the equipment used and procedures for ditching, ejection, and egress from the aircraft in emergencies. Amen! (January 1964)

Be Prepared!

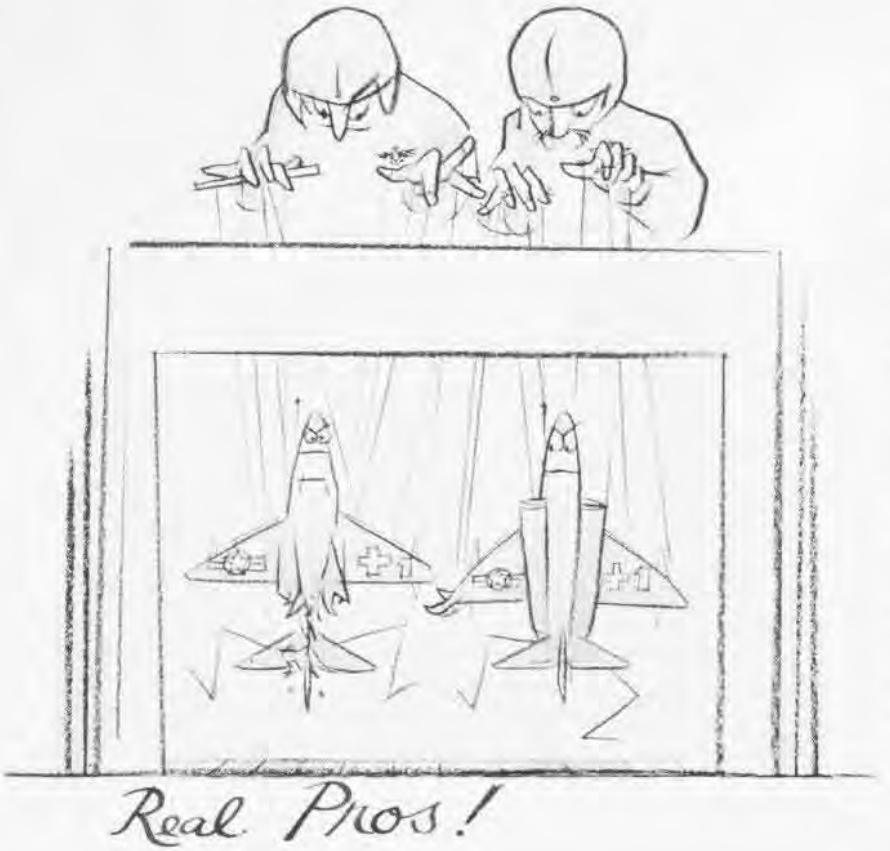
A section of A-4s was engaged in an acrobatics training flight. Following a standard clearing turn to the right, the wingman was pulling his aircraft up at full power when he heard a loud bang and felt a single, simultaneous thump in the airframe. As he rolled wings level, he noticed the illuminated fire warning light. He reduced power and notified his flight leader of his difficulty.

The wingman was informed by his flight leader that he was trailing smoke from the aft fuselage. He checked his instruments for secondary indications of fire. There were none. After 10 to 15 seconds, the fire warning light went out and the wingman headed for NAS Home Plate, 30 miles east. The flight leader completed a rendezvous with him and made an external inspection that revealed the aft five feet of fuselage and tailpipe was missing.

All control surfaces appeared intact. The wingman switched to NAS tower frequency, declared an emergency and requested a straight-in approach to a short-field arrestment. The two aircraft continued inbound to the NAS at reduced airspeed, reporting their position every five miles. While inbound, the two pilots discussed pertinent Natops procedures.

The arresting hook was lowered and the aircraft was given a slow flight controllability check. The control tower was notified of the disabled

ILLUSTRATED BY Osborn



aircraft's intention to perform a modified low precautionary approach to a short-field arrestment. The landing checklist was completed and the approach flown as planned. When a successful landing was assured, the disabled A-4 pilot reduced the power to idle, deployed the speed brakes and flared to a touchdown on the centerline. Touchdown was 400 feet past the threshold and the aircraft rolled 800 feet into the short field arresting gear for a successful arrestment.

The pilot then secured the engine and emergency fuel control, pulled down the ejection control safety handle, quickly unstrapped, opened the canopy and exited the aircraft. With the crash crew on the scene, the landing gear was pinned and the aircraft towed clear of the runway.

Grampaw Pettibone says:

Well singe my ole gray whiskers! These young fellers are a couple of professionals. Confucius says, "In all things, success depends upon previous preparation. . . ." The pilots involved in this incident were prepared. They worked as a team and coordinated Natops procedures as well as communications. The mishap was caused by structural failure of the aircraft. The predikament was successfully resolved due to the professional action of both pilots. Bravo Zulu!!

Pssst — The War's Over!

Turning back toward the target on a .50-cal gun run, the helo crew felt a moderate jolt. Questioning the gun crew, the pilots were told that an ammo can had blown out of the aircraft, apparently under the sponson. Since no vibrations were felt, the pilot elected to return to home plate.

Post-flight revealed that the ammo can had hit the sponson, struck the aircraft in the vicinity of the one-man work platform, flown back into the base of the tail pylon, deflected into the tail rotor, and then impacted the main rotor before being thrown clear of the aircraft.

Utilization of improper .50-cal mounting equipment allowed the gun to vibrate excessively when fired and this vibration caused the ammo can to disengage from its mount. In this instance, two guns were operating from a single ammo can, which precluded proper security. The can was held in place by one of the crew members rather than being properly secured. Following a change in gunners, the ammo can was left unattended and blew out of the aircraft.

Grampaw Pettibone says:

Sonufagun! These sharpshooters were mighty lucky. Good judgment and common sense took a holiday. The crew's desire to complete a mission, in spite of unsatisfactory and improperly secured equipment, placed mission accomplishment above safety and was potentially catastrophic. Maybe someone oughta write more definitive Natops operating procedures for the .50-cal machine gun. Birthdays are more fun when you're around to eat the cake.

HAWK, HUCK, PREACHER

AND FRIENDS

By Cdr. Rosario Rausa

The rest of their call signs are Black, Mad Dog, Kunta, Snake, Turtle, Red Peppers, Squeezer, Dirt, Jumper, Mumms, Baskets and Smokey. CB buddies? Cartoon characters? Not on your life. These are the call signs used by Top Gun instructors, flyers at the U.S. Navy Fighter Weapons School, NAS Miramar.

A select group of young officers — only three are lieutenant commanders — manage a dynamic postgraduate fighter training program for experienced fleet aircrews. In the brief history of Top Gun, the unit has been noticeably successful in enhancing Naval Air readiness in the field of air-to-air combat.

NFWS provides postgraduate instruction for Naval and Marine Aviators in all aspects of fighter weapons systems, including tactics, techniques, procedures and doctrine.

Squadron C.O.s recommend candidates for matriculation at Top Gun. Those selected must be career-oriented with above average ability to fly and teach. They should also be tentatively slated for an operations department billet in their squadron.

Top Gun's instructors are very carefully chosen. LCdr. Monroe "Hawk" Smith is the skipper and describes the ingredients he looks for in an instructor. In addition to at least one squadron tour "he must possess patient aggressiveness and good eyes. He's got to be in good physical shape and have well above average tactical motor skills. Importantly, he must be intelligent and be able to articulate effectively the finite details of ACM. He's got to love to fly. Around here two to three hops a day are not uncommon. On top of this, there is always paper work to handle when you're on the ground.

"Additionally, every officer teaches at least eight hours of lectures to each class."

The professionalism at NFWS shows. Schedules are strictly adhered to. Little time is wasted. All on board reflect an awareness of the training's importance to overall fleet readiness.

Students operate their own squadron aircraft, but Top Gun's pilots keep their maintenance personnel plenty busy. Declares Skipper Smith, "Our enlisted men get caught up in the mission as much as the flyers. They know how vital it is and provide tremendous support. Our aircraft availability is excellent. I'm also proud of our advancement and reenlistment rates. They compare most favorably with other commands. Even our three yeomen and one personnelman work at 110 percent."

Hawk has 14 officers — four of them NFOs, another a maintenance specialist — and 80 enlisted personnel, most of them with group IX ratings. The camouflaged aircraft the unit flies include the A-4E *Skyhawk* (sometimes called the *Mongoose*), the tandem seat T-38A *Talon* and the F-5E *Tiger II* which bears a convenient resemblance to the Soviet MiG-21. Later this year Top Gun will be receiving the two-seat *Tiger II*, the F-5F, Northrop Corporation, which manufactures the slim-lined F-5s, supplies technicians for maintaining the *Tigers* under the contract maintenance concept. Navy AMEs and PRs, however, maintain the ejection seat and survival equipment and all preflight and related tasks are performed by the professional Navy plane captains.

Formation of Top Gun was a result of a special study begun in 1968. The Vietnam War was raging then and U.S. Navy flyers were scoring aerial kills at something less than a three-to-one ratio over the enemy. Greater success was necessary, however, and the Naval Air Systems Command, with Captain Frank W. Ault supervising, went to work.

Capt. Ault was tasked with analyzing aerial combat as it was being manifested in Southeast Asia. It became apparent that there was a need for improved missile reliability and for better trained, highly skilled fighter crews to operate their weapons systems and more effectively employ air-to-air missiles. NavAirSysCom recommended establishment of a school to train a hard core of flyers who would become extremely competent in ACM and weapons use.

VF-121, the Pacific Fleet replacement training squadron at Miramar, set up a program for the entire Navy F-4 *Phantom* community. In March 1969, the first class graduated. The philosophy was, and still is, to take aircrews from fleet squadrons and give them the most refined, definitive ground and flight instruction possible. The graduates then return to their units to form an expert nucleus of ACM advisors. In a way, they constitute a centerpiece of specialized knowledge within the command. They are a source of that knowledge as well as dispensers of it.

Top Gun has worked. The results in Vietnam proved it. The kill ratio in air-to-air combat improved substantially, so that by the end of the war, Navy aircrews had mastered a 12.5 to 1 ratio over the adversary.

NFWS graduates seven classes annually. Each consists of six fighter crews — pilots and naval flight officers. There are 28 syllabus flights per crew and 90 academic hours. It takes five busy weeks to complete the course. Ground school emphasizes ACM procedures, air-to-air gunnery, intelligence briefs on aircraft and weapons of other countries, weapons systems, missile procedures, electronic warfare, fighter performance studies and threat tactics.

NFWS also gets involved with air-wing-type training and plays the adversary role in operational readiness exercises for ship/air wing teams. Instructors also fly as "wiley" bogies on alpha strike exercises and emulate techniques which enemy fighters might use in a real fight. NFWS' planes, by the way, wear Soviet-type numerals on the fuselages.

The various camouflaged paint jobs are kept spotless by the enthusiastic plane captains and reflect the pride of each individual in the squadron.

Top Gun's aircraft are lean and handsome articles indeed. The unit's administrative spaces in Miramar's hangar, on the other hand, are austere and far from roomy, with one exception — the main classroom. It is paneled and spacious. Its walls abound with photographs you might find in a retired flyer's den. Group photos of graduating classes occupy one area and are of passing interest but for the bright red miniature airplanes which appear across the chest of a flyer here and there. These denote pilots and RIOs who bagged enemy MiGs in Southeast Asia! A very select group, to be sure.

One imposing dark-toned lithograph depicts Adolf Galland, Commander, WW II Fighter Forces, Luftwaffe, in the cockpit of a vintage fighter. The caption is an excerpt from his philosophy: "Only the spirit of attack born in a brave heart will bring success to any fighter aircraft no matter how highly developed it may be."

The atmosphere in the classroom may be conducive to comfort but the subject matter, much of it classified, which echoes through the room is the opposite. Day in, day out, instructors articulate the nuances and hard facts of air-to-air combat. Students don't necessarily hang on every word, but they have to be extra attentive if they are to extract the most from Top Gun's vast data bank.

Instructors know that a heavy load of missile parameter mathematics or dissertations on the precise physical limitations of non-Free World tactical aircraft comprise very syrupy stuff. Somehow, though, they are able to keep the lectures lively in tone. Constructive comments and critiques are solicited from each student and given considerable attention by the skipper and his staff. "Student critiques have proven to be highly valuable in improving the Top Gun course," says Skipper Smith.

Throughout the course, the basic tenets of ACM emerge to become fixed in the minds of students somewhat like the basic do's and don'ts handed down in grade school.

"In ACM," says Lt. Huck Harris

Lt. Preacher Pace, left, boards T-38 for ACM hop (photo by Bob Lawson). Below, ACMR provides precise visual readout of training flights. Bottom, F-5F on wing of F-5E. Top Gun is scheduled to receive Northrop's two-seater later this year.

to the class, "the guy who wins is the guy who makes the minimum number of gross mistakes." Preaches Lt. Preacher Pace, "Know and use all the capabilities in your airplane. If you don't, sooner than later, some guy who does use them all will kick your . . . !"

Marine Captain Jumper Hoyt advises, "Don't be a King Kong. And don't believe your wingman, despite your abiding respect for him, is Charles Atlas. You may conquer all but, chances are, you really aren't King Kong and Charles Atlas isn't your wingman."

Hoyt adds, "Here at Top Gun do not be apologetic. Be aggressive. Before a hop, think, 'We're going to go out there and kill that bogie.' Have a sound plan in your brief. You RIOs," he goes on, "know your stuff and take charge. Don't make mousy calls. Start setting policy up there."

Preacher further amplifies, "Most Navy pilots bagged in Vietnam did not see their attackers. It's vital to get an early tally ho and keep the bad guy in sight. Know where the sun is. Is it high? Is it low? Is the weather overcast? Undercast? Be careful in the cockpit. If you have focused your eyes on the fuel gauge there will be a consequent delay in focusing on far away things when you raise up out of the cockpit."

Huck asserts, "Bleed that bogie's energy. Maintain your own. If you've got a bad buy behind you, unload. Don't give up. Fly your airplane effectively. Know its limits. How many units on the angle of attack can you achieve before dumping over?"

Top Gun also helps train air intercept controllers. Operations specialists destined for carrier assignments, for example, attend pre- and post-flight briefings. While pilots and NFOs man-up their aircraft, controllers proceed to Point Loma at the ocean's edge. There, from a radar station, they vector aircraft, identify traffic and otherwise direct ACM endeavors under way aloft. Controllers polish their techniques while flyers do the same to theirs. This concept of including controllers in the program reaps rewards personified by improved coordination between ground and air units ashore and especially aboard the flattops.

One device which helps Top Gun get its message across is the ACMR —

Lt. Huck Harris addresses NFWS class, above, while ground crew awaits returning planes, below.

LCdr. Monroe "Hawk" Smith, Top Gun skipper, left. Ed Reilly and Northrop Corporation provided this view, below, of missile firing from F-4. Bottom, Top Gun Tiger II with Soviet-type numerals.

Air Combat Maneuvering Range. Also referred to as ACMI (the I is for instrumentation) at other installations, it constitutes one of the best training aids since the Link trainer. Put simply, ACMR records aircraft maneuvering and simulated missile firings so that what took place in the air can be studied after a flight (*NANews*, August 1972).

NFWS uses the Yuma ACMR complex for its syllabus flights although many hops do occur off the California coast without benefit of the ACMR.

Sidewinder-like pods are mounted on participating aircraft. They contain various sensors and transmission gear. They receive data from tracking units on the ground. The data is transmitted to unmanned computation equipment housed in van-like trailers. Information is instantaneously processed and displayed on CRTs in a briefing area. The entire dog fight can be observed on the ground while it is occurring.

What is amazing is that the flight can be reenacted and viewed from virtually any vantage point. By pushing buttons, one can "see" the action from the ground or put himself in the cockpit of any of the planes to get a particular pilot's view.

More importantly, when pilot A fires a missile at pilot B, it is depicted on the screen speeding toward the target. ACMR precisely judges whether the missile hit or missed the target.

On an adjacent display, columns of data pertinent to each aircraft are available. Flights can be replayed at real time or slowed for analysis. Airspeed, G information and literally volumes of information are updated continuously as the flight is flown.

The air intercept controller takes his place at the display console and directs the fighters as necessary during an engagement.

The ACMR system is manufactured by the San Diego-based Cubic Corporation. As Cubic technician Bill Dollard says, "With ACMR, there are no secrets left. It's a great training aid."

Skipper Hawk Smith is a highly experienced fighter pilot with over 3,000 hours as both an NFO and a pilot. He is vitally attuned to the need for and strongly endorses the increasing attention, Navy-wide, devoted to the ACM and DACM (defensive air combat maneuvering) phases of Naval Aviation.

"It's my own opinion," he says, "but the Soviets have made tremendous strides in strengthening their aerial capabilities through conflicts involving Third World countries which employ Soviet weaponry. We're working energetically on our own to counteract this, of course. I was fortunate, for example, in being able to fly the YF-17A prototype for the F-18A (*NANews*, May 1977). I'm very optimistic about the *Hornet*.

"At the same time I'd like to see an increase in our fighter aircraft inventory so that, in forward areas like the Mediterranean, we could rapidly replenish aircraft lost in a conflict and still provide continuous fighter coverage for the ship and strike forces. I personally feel that a lack of fighters translates to a lack of political power. Without substantial fighter cover, it's conceivable that the carrier might have to back off.

"In the meantime, here at Top Gun we're doing our best to make the fighter aircrews and their airplanes a powerful force to be reckoned with."

There are few, if any, doubts that the Navy Fighter Weapons School is achieving anything less than that. Top Gun personnel, from the troops in maintenance on up through Hawk, Huck, Preacher and Company, seem to be well imbued with the spirit of the Top Gun motto: "Fight to fly, fly to fight, fight to win."

TOPSCOPE

Top Scope is an offshoot of Top Gun and is part of NFWS. It is a three-week program dedicated to closing a void that existed in postgraduate intercept training. Still young, it began in November 1976 with a class of RIOs from VF squadrons. Although primarily designed for the RIO, pilots will eventually take the course. The syllabus consists of about 60 hours of academics focused on definition of enemy threats and tactics and effective countertactics. Each student also gets seven hours of concentrated ECM intercept simulator instruction. The goal is to help RIOs refine tactics in the maritime air superiority field with a special eye toward the ocean warfare scenario. This open sea environment differs considerably from the Yankee-station-type operations which were conducted near the shoreline.

LCdr. Tom Finta is Top Scope's first officer in charge. He has 2,100 hours as an NFO in *Phantoms* and *Tomcats* and is a veteran of two combat cruises and test flight assignments. He indicates that "Should a war erupt, it's feasible that barrages of enemy missiles could be flung against surface ships as well as aircraft. We must be prepared to act against this with rapid, selective electronic jamming and other means. RIOs will have to screen and identify missiles with speed and accuracy while conducting all their other tasks."

Already Top Scope has been instrumental in development of new tactics. Some new methods, for example, were evaluated during the first Top Scope course. They are now being investigated by VX-4. Says Skipper Smith, "Newly developed F-14 tactics were modified and applied to the F-4J *Phantom* through Top Scope experience. The result: some basic intercept capabilities were discovered for the *Phantom* in an ECM environment where previously none were thought to exist."

Adds Finta, "Top Scope will be based at Miramar but handle East Coast people as well as those in the west. And, when necessary, Top Scope will travel. We plan on visits of limited duration to fleet units."

In the solemn business of preparing for warfare — warfare which hopefully can be forever avoided — Top Scope is another means of ensuring that aircrews will be ready to meet the grim challenges which might arise in the future.

Bob Lawson photographed Top Gun A-4E landing at Miramar.

War Week

By Lt. Steven A. Murray

Good position. The bogey has just lost sight and he's about to pay for his mistake. Pull a little harder now . . . just a little more G . . . ready for the shot, and . . . too late.

"Inferno One, you're out of the fight." The scratchy voice of the ground controller means the potential killer has been bagged by another unseen bogey, the price of too much confidence. For this *Phantom* crew, War Week is over.

Many such episodes took place earlier this year during a series of mock air battles between VF-301 and VC-13, two Naval Air Reserve squadrons based at NAS Miramar. *Phantoms* were pitted against *Skyhawks* in a simulation of "real world" combat. War week, complete with day-to-day tactical "losses," was designed to teach some sobering lessons to both sides.

The primary goals of war week were to promote realism in aircrew tactical training and to sharpen skills of fighter squadrons. The emphasis was on development of sound judgment and flying skills. The growing trend toward tactical experimentation had been observed by the two units for some time. In some cases, aircrews were found to salvage bad starts, to continue to fight from a defensive position, or to maintain the engagement down to a bingo fuel state when a planned escape was impossible. The operations departments of VF-301 and VC-13 developed war week to drive home just how costly these practices can be. It was a five-day, active duty exercise for ready reservists with some unusual rules.

All ACM sorties were scheduled on the air combat maneuvering range near Yuma, Ariz., where telemetered intercept control was available along with scoring and playbacks of entire multi-plane engagements on computer tape. Two events were scheduled each day, one-versus-one and two-versus-one, involving 14 *Phantom* aircrews and seven *Skyhawk* pilots. A total of 24 sorties were launched by each squadron.

In-depth briefings were held prior to each launch and all standard rules of engagement were maintained, with one crucial addition: within the bounds of flight safety and common sense, an engagement had to be continued until all opposing aircraft had been "shot down" or until a successful escape to a predesignated safe area had been effected. There were no stalemates; a participant could win, lose or escape and had to closely watch his fuel since a fuel divert counted as a loss.

Real-time functions were utilized by the range computer scoring system. This mode allowed for computation of missile time-of-flight and presented a defensive aircraft with the opportunity to defeat a shot by quick maneuvering. No engagement ended with a simple "knock it off" call, but required aircrew persistence to the very end. Range telemetry permitted unusually close safety monitoring by the ground controller and maximum use of scheduled range times was implemented by the A-3 tanking services of VAQ-308.

The final condition of the exercise was most critical. In order to encourage a sense of strategic fighting, losses were considered permanent for the duration of the exercise. When an aircrew was successfully scored against, it was excluded from all subsequent events; a kill was registered for the victor squadron.

It soon became apparent that some pilots wouldn't participate very long. Those who didn't adopt the tactical changes were soon out of the competition. Mutual support tightened up and lookout doctrine took on great importance.

Scores were even between the two squadrons at the end of the week. Pilot reaction was very favorable. Everyone profited from the experience. "Live to fight another day" became the motto as the futility of short-term risks was repeatedly driven home.

This initial attempt at war week has become the prototype for future exercises. Unexpected situations appeared which had to be handled as they occurred, and some rule changes were necessary after the exercise began. The major flaws seem to have been worked out, however, and plans are already under way for expanded applications. In addition to exercises against other types of dissimilar opposition, rules are being formulated which will involve the squadron maintenance department in the total effort by requiring a defeated aircraft to be stricken, by side number, from participation in the remainder of an exercise. This will place even greater demands on air and ground personnel for efficient use of assets for the conduct of "real world" combat.

DACM with VA-127

VA-127 TA-4 filmed by Harry Gann, Douglas Aircraft Co.

The carrier strike force order of battle maintains the doctrine of fighter cover over the attack force, between the attack force and expected threat, and over the carrier strike force. In the Vietnamese war this doctrine proved successful. There were very few airborne challenges to the integrity of our attack fighters, and the carriers were never subject to air attack.

This method of fighter deployment is successful in surprise strikes against lightly defended or undefended targets and in sustained operations where air superiority has already been achieved.

But in a battle for air superiority or in an opposed environment, the attack force is more vulnerable and the attack pilot must be well prepared to defend himself and to exit the area.

If an enemy engages the attack pilot before he delivers his weapons, thus forcing him to jettison his weapons or deliver them off target, the enemy has done his job as surely as if he had shot down the attacker.

If the attack pilot is engaged as he leaves the target, he must be able to neutralize the fight until help arrives, disengage and return home — or kill the enemy.

To do this the attack pilot must be well trained in defensive and offensive air combat maneuvering, and he must know the limits and capabilities of his and the enemy's machine.

The goals of the light attack adversary program are to assist the light attack pilot in determining optimum maneuvers and tactics for his aircraft; to furnish each light attack squadron with a defensive tactics syllabus for use against a dissimilar, highly maneuverable adversary; and to give the light attack community the expertise and confidence necessary to operate successfully in an opposed environment.

ROCCO, THE STINGERS ARE READY!

Story and Photos by Cdr. Rosario Rausa

So declares the nicely modulated voice over the UHF radio. The message travels from the lead A-7 forward along the taxiway to the camouflaged *Skyhawk*. Inside the A-4, LCdr. Rocco Walker glances back at the pair of *Corsairs* with the giant bumblebees on their tails. He pumps a single-stroke thumbs up. Automatically, the pilots switch frequencies. A telephone-like tone sounds in Rocco's earphones as he cycles his radio switch.

In Lemoore's landmark tower, a glass-capped pillar of concrete which wears full-color squadron insignias on its sides, a controller keys his mike. He clears them for takeoff.

The trio swings onto the runway. Each plane maneuvers through a prescribed arc, avoiding the searing waves of heat which shimmer from the jet tailpipes. Seconds later, in sequence, the aircraft roll down the black-smudged strip of concrete. Aloft and climbing, they join quickly,

Rocco in the lead. Already he is communicating with those in the darkened radar rooms below.

He receives vectors through the traffic which abounds around one of Naval Air's master jet bases. The flight proceeds northbound over the checkerboard flatlands of the San Joaquin Valley. The flyers ascend to 20,000 feet and cruise for the few minutes it takes to reach the restricted area.

It is a huge hall of airspace above parallel mountain ranges separated by a wide valley. Snow lays in pockets along the upper ridges. The burnt umber flanks of the mountain meld into the green and rich brown hues of the valley floor. Rivers, highways and country roads are etched in wandering script across the level land.

It is midday and wisps of clouds rise above the peaks. It is as if the mountains had drawn a deep breath


CDR ROB WATERS
COMMANDING OFFICER
01
RESCUE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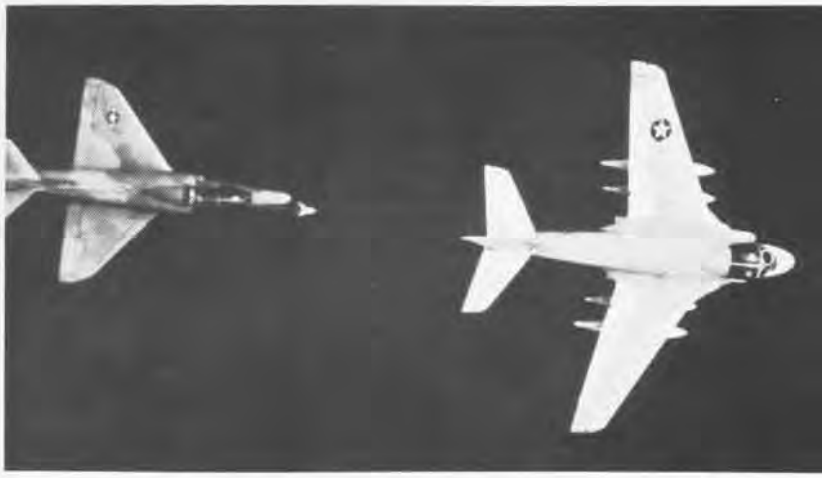


and expelled the clouds into the air. They form a sort of fence inside which Rocco and the *Stingers* will go to work. What they are about to do is in mute contrast to the tranquil permanence of the landscape below.

"Detaching!" says *Stinger* lead, Lt. George Cairnes. With him in the second *Corsair* is Ltjg. Paul Jorgenson. They dip down and away to set up for a run down the hall. Rocco stays high to loiter. The meaty portion of a VA-127 adversary program DACM hop is about to begin.

Several miles out of view from Rocco, the A-7s start down the valley. Theoretically they carry ordnance and are inbound to a target. Rocco knows roughly where the *Corsairs* are and the A-7s are aware that an enemy fighter could pounce on them at any time.

A moment or so passes. In the cockpits, heads are on swivels, eyes dart up and down the horizon. Rocco sights a movement, low at his ten o'clock. "There they be," he says to himself, holding a shallow turn, patient.

In defensive cruise formation — several hundred feet from each other — George and Paul search the sky. The butterflies have begun to squirm in three bellies.

With a sudden but smooth movement, Rocco rolls and pulls the A-4 down through the horizon. His line of sight changes from sky blue to a blur of earth bronze. Against this panorama he eyes the glinting figures of the A-7s. He becomes a diving dart, aimed at the unsuspecting *Corsairs*, gathering speed, 400 knots and increasing.

From the trail A-7, a quick, clear voice, "Nine o'clock high, break left!"

One second, maybe two, of silence.

"Got 'em," says George in the lead, nearly grunting as he hauls his jet into a swift four-G turn.

Rocco, "I'm engaged."

The A-7s are bending around. Rocco bends with them in his dive, keeping the *Corsairs* on his nose as best he can. The airplanes cross well away from each other. Rocco pulls up, reversing.

"He's coming around!"

"Rog."

The A-7s do a high-G one-eighty.

Was Rocco close enough in his run to send a missile or fire the cannons into the attackers? In the terse seconds of eyeball-to-airplane contact could he have knocked an A-7 out of the sky? Or were the *Corsairs* quick enough to evade? That will be discussed later in the debrief on the ground.

Meanwhile, the *Corsairs* pull and turn through the sky. Rocco chases. George and Paul try to avoid the

pursuit. As the number two man, Paul has to keep George in sight, all the while trying to track Rocco. It's demanding work. George has to do essentially the same, relying on Paul to keep his safe distance.

Rocco arcs to the east, zoom climbing. He is pressed into his seat by the gravitational forces. The *Corsairs* return to their base heading.

Paul. "Still got him?"

George. "Affirm, he's high eastbound."

Rocco intervenes. "OK *Stinger*, good show, let's disengage . . . and do it again."

It takes several moments for repositioning. Then the swirling activity starts again.

Were these adventures diagrammatically recorded, they would look like a wild pattern of interweaving lines—a slinky toy twisted and looped, devoid of symmetry.

Several more engagements follow. Brief, furious and turbulent, they take only minutes each. Surely they lack the pure heart-in-the-mouth intensity of a fight-for-your-life hassle in true combat. Nevertheless, each pilot exerts himself to the full limits of physical and mental skill.

As the last flurry subsides, George calls, "Bug out," the signal that fuel is diminishing, it's time to head for home. Spent, relaxed, the three jets converge smoothly, as if pulled together by a single string, for the journey to Lemoore.

Rocco is VA-127's assistant operations officer specializing in the adversary program. A graduate of the Fighter Weapons School (Top Gun), NAS Miramar, he helps administer the five-hop syllabus for fleet squadrons. George and Paul are from VA-113. Earlier in the day these three young officers sat at a table in the *Royal Blues'* ready room carefully outlining their "one vs. two" syllabus hop.

Pre- and post-flight briefings for air-to-air type sorties are as detailed as any in Naval Aviation. They are always conducted face to face, all parties present.

"Common sense dictates," says Rocco. "If something goes wrong out there, call a time out. Level off. Check around and get all the players in sight. Safety is paramount. Let's not try to King Kong each other."

There follows a discussion of jinkouts, displacement rolls, lag pursuit rolls, high yo-yos, low yo-yos, extensions and so on. "Analyze your closure rate," says Rocco. "Know the other guy's missile envelope, his speed, his turning radius. Use the sun."

"But most important," he continues, pausing momentarily for emphasis, "remember this: Try to negate the fighter's attack so that you can escape and return to fight another day!"

It's against a Navy pilot's basic nature to turn tail and avoid a fight. However, in the case of an attack pilot whose primary task is delivering the ordnance and putting it on a target, he must suppress the pugnacious disposition to do battle with pursuers. At the same time he must master defensive air combat maneuvering techniques. VA-127's X.O., Commander Gary Beck, admits that this area constituted "the most serious deficiency in VA-type training in the Southeast Asian conflict."

Figuring in the beginning of VA-127's adversary program were Commander Ron Shields, *Royal Blues'* C.O. in 1974, and LCdr. John Allman. They had shared some ideas when both were ships company officers aboard USS *Enterprise* earlier. Allman was assigned to VA-127 when Shields was skipper and tasked with helping beef up the tactics syllabus.

Lt. Ritchie Gouk also worked closely with Allman. Allman went through ground training at the Navy Fighter Weapons School to enhance his ACM knowledge and by April 1975 fleet replacement pilot classes were flying in a new defensive air combat maneuvering syllabus at VA-127. VA-147 was the first fleet unit to experience the program.

Modifications followed. Commander Light Attack Wing, Pacific, headquartered at Lemoore, endorsed the project and correspondence was submitted through the chain of command to CNO. As a result, VA-127 was designated an adversary squadron in November 1975. Its secondary mission, in addition to providing basic and refresher instrument training, was to furnish dissimilar defensive air combat maneuvering instruction, primarily for Light Attack Wing, Pacific.

Gouk and Allman eventually completed the Navy Fighter Weapons School adversary pilot training program. Today, *Royal Blues'* instructors for DACM flights must complete a 15-hop syllabus within the command, as well as the Top Gun adversary pilot training course. Prerequisites also include a fleet tour in an attack or fighter unit plus 100 A-4 hours after the training command.

The five-flight syllabus includes one one-vs.-one, three two-vs.-one, and a single two-vs.-two hops.

As the program was being evaluated in 1975, Commander, Light Attack Wing, Pacific, Rear Admiral W. H. Harris, commented that "It is not the intent to turn the light attack community into fighter pilots." At the same time, "Fiscal constraints and scheduling conflicts make it impractical to utilize the Navy Fighter Weapons School on the scale required to provide even minimal training to all fleet squadrons at Lemoore. An in-house adversary capability will provide a significant improvement in overall light attack readiness."

VA-122 C.O. at the time, Commander R. L. Grant, viewed the training as a major step in filling the ACM void that exists in the light attack community. "In future conflicts," he added, "our forces will probably not enjoy the decisive air superiority prevalent in the Vietnam War." He went on to say that "incorrect procedures and bad habits are unconsciously developed from training only against other A-7 aircraft. It takes an encounter with dissimilar aircraft to identify training deficiences."

After his squadron's participation in the program, VA-147 skipper, Commander D. D. Smith, remarked that "it offered enormous benefit to experienced and young pilots alike in coping with the difficult problems associated with defending a performance-limited airplane [A-7] against superior enemy hardware."

VA-127 often embellishes practice alpha strikes with its adversary *Skyhawks*. Commander Ron Waters, *Royal Blues'* commanding officer, explains, "On such missions, which involve large numbers of several different type aircraft, we enhance realism by trying to disrupt air wing strike groups on their way to or egressing from a target."

One day last March, it was VA-25's turn to lead Commander Sam Flynn's Air Wing Two on a strike. The target was a simulated runway carved into the Nevada sand by bulldozers at the NAS Fallon complex. Rocco Walker

and his operations officer, LCdr. Denny Baumann, would fly the camouflaged A-4s as bandits.

Let's go to the brief.

At the podium in the *Fist of the Fleet's* crowded ready room is LCdr. Al Nichols, the flight leader. CAG Flynn will be in a *Phantom* flying cover. Behind Al the blackboard is chalked with numbers, lines and diagrams. At his side is an easel holding a stack of flip charts illuminated by the bold, bright strokes of fiber-tipped pens.

Al, incidentally, personifies the mother lode of experienced pilots in today's fleet. He is a veteran of three combat cruises in Southeast Asia. His last one was abbreviated by North Vietnamese guns in 1972 when he was shot down and imprisoned for the duration. But he's back in the cockpit now and will lead a dozen planes from his squadron and VA-145, VF-21, VF-154 and VA-113 against that runway in the desert.

The flip charts signify the multi-dimensional nature of an alpha strike briefing. Levels of concern range from communications procedures to the location of wildlife refuges along the route. Weather, IFF squawks, tactical contingencies, check points, tanker orbits, rules of engagements, and AAA and missile sites are but some of the items described.

Alpha strikes, even practice ones, never have become old hat. Tactics for them are continuously being modified, tested, refined. The strikes are high stakes evolutions. Not so long ago they were launched from Yankee Station carriers and executed in the treacherous skies of North Vietnam. They remain important ingredients in the Naval Air inventory.

At the same time, those who lead alpha strikes face one of the most challenging ventures in Naval Aviation. Taken into consideration with the proliferating factors involved from man-up to shut-down in such a major endeavor, the presence of "enemy" fighters imposes a necessary and valuable headache on them. Walker and Baumann know this as they listen from the rear of the ready room. They fully intend to aggravate that headache.

Nichols points to a thick blue line on one of the charts. "We'll use this as the enemy coastline. Once across it, we're feet dry." He slides the pointer up. "We'll start descent and acceleration here," tapping his pointer north of Walker Lake. "Here," tapping again, "I'll call Armstrong, so everyone have your switches set."

Carefully, Nichols outlines the route which will take the group through a gradual arc southward by Lone Rock, a final checkpoint, and on into the impact range and the target.

Facial expressions in the audience don't change when Nichols declares, "We'll boom in, drop the bombs and race out of there." But there is a certain churning of stomachs among the aircrews. Those precious seconds on either side of the target are like the few remaining ones in a tight ball game in which either team can score and win. There is virtually no room for error if good hits on the target are to be achieved.

About two hours later, the players are in the air. Denny and Rocco had launched earlier and orbit separately further up the trail from the air wing which passes Walker Lake, northbound.

The Nevada landscape is cracked brown earth, gnarled, austere, moonlike. Slivers of snow at the higher elevations alleviate the drab coloring. Dried rivulets look like lines of age on the faces of the mountains.

Denny flings his A-4 against the


Baumann


Jorgenson

Cairnes


Nichols


Walker

strike group, well south of Fallon. His diving pursuit is initially undetected. As he approaches firing range, the *Phantoms* react. The F-4s swiftly break loose. There is a rapid counterattack. The air is filled with staccato dialogue for a moment or so, it then subsides. Denny draws back his fangs. The attackers drive onward and the *Phantoms* return overhead the bomb-laden A-7s and A-6s.

Rocco orbits Lone Rock, a scarred monolith which protrudes from the flatlands of the Carson Sink like a barren, solitary outpost. He stays high, studying the landscape for any movement, any shadow which might signal the oncoming force. He is in a shallow left bank when a glimmer catches his eye. It is nothing more definitive or prolonged than an insect's flitting across a pond. But he swings the *Skyhawk* rapidly onto its right wing.

Below him, approaching the monolith, is the string of airplanes. In a way they look like an airborne freight train, the cars unhitched and irregularly spaced from each other, hell bent for the target. They're low to the ground, relentless, speeding over the sand.

"Canasta One, coming right," says Nichols at the apex of the formation. He dips his wing slightly — no major course changes at this point. In an accordion effect, the wingmen compress a bit, then steady up.

Rocco rolls and dives. He's a plunging dart aimed at the freight train.

Is it a sixth sense among the *Phantom* drivers? Did someone in the cover birds also catch a fleeting movement, a frisky flash of metal in the sun? No matter.

"Ten o'clock high, left to right!" someone calls.

Heads and necks twist, eyes strain and scan the sky.

"Don't have 'im yet. . . . OK, I got him. Hang on! Breaking left!"

The fight is on.

During an oh so swift silence, collective minds make instant solutions to instantly developing problems. Numerous decisions are made as each swirling flyer employs every measure of his own and his airplane's capabilities to outmaneuver, outturn, outshoot — outdo the opponent. Every increasing degree of bank angle, every extra G, each decrease or increase in energy expenditure involves a swiftly measured calculation.

Rocco pulls hard, shifting his pursuit angle onto a *Corsair* in the middle of the pack. He levels his wings, pointed nearly straight down, and mentally calculates swooshing a missile at the A-7. The *Phantoms* rise toward him, leaving giant Cs of engine smoke in their wake.

Rocco hauls back on the stick. He feels like a lead slab fit to the contours of his torso has been slung against him. A *Phantom* whisks by from the A-4's three o'clock, over to its nine. Rocco sees another *Phantom* bending toward him, so he tightens the turn, throttle jammed forward, and heads for the range of rolling hills which run north to south along the eastern edge of the sink. He works his jaw, clearing his ears against the dramatic change in pressure. As he scampers down low into the hills, accelerating, he can see the strike group disappearing in the distance. He barely hears Nichols' transmission, "This is Canasta lead, the target is straight ahead, stand by!"

Rocco runs out the lower end of the hills, then zooms upward, escaping from his temporary refuge. Quickly he's at 20,000 feet and sights a fighter behind and slightly below his position. Just as suddenly there's another call, "I have the bogey at my eleven."

There ensues a wild circling of planes. Transmissions saturate the airways. In air-to-air combat this flourishing of rhetoric is a necessary evil. Indeed, communications between friends against a foe is pretty much mandatory. Helping each other out is a natural and essential inclination.

In a rare pause in the UHF exchange of data, Nichols' voice is barely audible.

"This is Canasta clear!"

Those engaged in the whirling dogfight over the desert can't see it, but the target is enveloped in black, red and dusty brown cauliflower clouds. They erupt with startling suddenness. The *Corsairs* and *Intruders* hustle away to the south. Nichols and company are racing to the feet-wet point and the sanctuary of the simulated sea near Walker Lake.

The skirmish with Rocco and the *Phantoms* goes on for a few more turns. A bugout is finally called and the engagement ends. Throughout the fracas Walker has made mental notes. He will transcribe them onto blackboards later. For now he tails the others back to Lemoore, slowing for a moment en route to plug into an A-6 tanker for extra gas.

Later, the debrief is under way. Flight suits wrinkled, hair pressed down from sweat and skull caps, the flyers are relaxed, spent but attentive.

"The hits looked good," says Nichols. He describes a few snafus which detracted from an otherwise excellent mission. CAG speaks and, finally, the air-to-air evolution is covered.

"No way did you have angle on me!"

"Why, you were in my sights for at least three seconds!"

"A snapshot, maybe, no more than that!"

"Never. I saw you long before you made that roll-in!"

After the smiling accusations and chuckling denials subside, Walker and Baumann get down to details. When the conversation ends it is clear that, beneath the humor, there is the unspoken knowledge that the brawling in the sky was a learning experience for everyone.

It sounds like fun, hurling an aircraft through the sky, pulling Gs, whipping the plane through endless circles and turns and twists. Feeling the velocity in a dive. Roaring straight up on a pullout. Getting that bad guy in your sights. Ratatatat!

Straight out of Duke Wayne or *Baa Baa, Black Sheep.*

It is that. But mostly it's work. Work, study and preparation. Rear Admiral Robert P. McKenzie, Commander, Light Attack Wing, Pacific, who is headquartered at Lemoore, is a prime advocate of the *Royal Blues'* DACM program.

"Its value," he asserts, "is favorable in every respect. It is my desire to have squadrons complete the syllabus during turnaround cycles between deployments. It is vital that our flyers be exposed to and learn from this training. There may come a time again, when they must go in harm's way."

In a future issue, NANews will feature an update on ACMR systems and the joint Air Force/Navy Aimval (air intercept missile evaluation) and Aceval (air combat evaluation program) activities.

touch and go

. . . and Son

"Inch by inch, square foot by square foot, this is the most concentrated mass of technology I've ever been exposed to in my life, and that's saying something." Sergei Sikorsky, son of helicopter pioneer, Igor Sikorsky, was addressing *Saratoga* crewmen during a visit to the ship. He went aboard for his first look at Naval Aviation from a carrier. *Sara* was conducting refresher training for fleet pilots off Jacksonville, Fla.

He toured the ship, talked with the crew and saw, for the first time, aircraft launched and recovered at sea. In an interview over the ship's television, he told how his father had almost lost his life in a crash in Russia while testing an experimental, fixed-wing aircraft. From that incident, Igor Sikorsky got his idea for a helicopter, to be used primarily for life-saving.

Sergei Sikorsky said that he felt his father's dreams for the helicopter had been realized. He believes that the future for helicopters is bright and that, technologically, development is at an exciting and innovative stage. He said, in closing, "If Dad were here today, I know he would extend to the entire crew — pilots, technicians and crewmen — his gratitude for the realization of a dream."

Sikorsky was a Navy aviation machinist's mate in World War II.

LAMPS and DesRon

Why would a destroyer squadron need an aviation officer? With the introduction of LAMPS (light airborne multipurpose system) aboard selected ASW ships, the total integration of air/surface ASW has emerged, with the LAMPS helicopter becoming an extension of the shipboard ASW capability. As LAMPS ships begin to deploy in numbers with the destroyer squadron, the DesRon commander is faced with a new dimension in his tactical employment of forces.

The LAMPS/ship interface, in itself a well-trained team, has to be coordinated with a variety of conventional ASW ships, with an occasional P-3, S-3 or H-3 air ASW asset. These are daily problems of a DesRon

commander. His staff, while eminently prepared to handle ship-oriented tactics, may not be equipped to handle this additional, relatively new mixture of assets.

Captain Arie C. A. Sigmond, Commander, DesRonFour, experienced this situation when he prepared to deploy with his squadron to the Med. Included in his task group were four LAMPS - equipped ships. Realizing the need for additional expertise, he requested from ComNavAirLant the "loan of a qualified aviation officer, well versed in LAMPS/ASW operations, with recent officer-in-charge experience aboard a LAMPS ship." ComHelSeaConWing-1, Norfolk, was subsequently tasked to provide an officer TAD. The officer came from HAL-32 and the air ops billet of the DesRon staff was created and filled.

Prior to deployment, a meeting of the air ops officer with accompanying carrier and air group personnel established priorities and ground rules, thus eliminating many problems which might otherwise de-

velop once the task force began its transit. One of the major areas Capt. Sigmond wanted to explore was an expanded role for LAMPS. Together with the air ops officer, the captain wanted to provide a limited search scenario for his LAMPS helos — investigating threat axis coverage with a 24-hour airborne ASW asset. As the accompanying carrier had no ASW aircraft of its own, the total task fell on the four LAMPS ships.

LAMPS pilots accumulated over 180 hours airborne for the seven days of the crossing with only one four-hour time slot not covered by an airborne asset. Two unidentified submarines were contacted and prosecuted by LAMPS aircraft, aided by designated search attack unit ships.

Capt. Sigmond stated in a message to Commander, Naval Surface Force, U.S. Atlantic Fleet: "There is no doubt that a knowledgeable LAMPS air officer is a most valuable asset to a destroyer squadron commander's staff. . . . It is doubtful that the depth of knowledge required to maximize LAMPS operations is available at the destroyer level today. The presence of an air ops officer is not only desirable to enhance the availability of LAMPS or to act as the flight scheduling coordinator, but his services are also invaluable to coordinate or direct mutually supportive ops between maritime patrol air, surface units and LAMPS helicopters." ComNavSurfLant and ComNavAirLant are in agreement with both the concept and the need.

LCdr. Arthur D. Schatz

Ed's Note: LCdr. Schatz was the HAL-32 officer who filled the DesRon air ops billet.

Power Eye

VFP-63, NAS Miramar, Calif., the Navy's last frontline light photographic squadron, has been known as the *Eyes of the Fleet* for the last 12 years while fulfilling aircraft carrier reconnaissance requirements.

The squadron's RF-8Gs, however, are now undergoing a long needed change to boost their performance. The change, code-named *Power Eye*, involves replacing the photo-*Crusader* engines with J-57-P420s which were used in the now retired Js and Hs. The project, begun in December 1976, is scheduled to be completed by November this year. Navy and Vought are working closely on the project. Navy supervisor is LCdr. Grant Merrill, formerly maintenance officer at VFP-63. John Russell is the Vought team leader.

Because the 20-year-old *Crusaders* will continue to fly well into the 1980s, the engine change is being made to allow for a better wave-off capability around the carrier and an improved rate of climb.

Power Eye will also improve one of the most important capabilities of the RF-8G, its photography. For years *Crusaders* have used KA-50-series aerial cameras even though the KS-87 types were considered better in many ways. Now the RF-8Gs will be able to use the KS-87 series.

So far, 10 *Crusaders* have been converted, including those of reserve squadrons VFPs 306 and 206.

PH2 Doug Cunningham

Seeing the Pyramids

along the Nile last December were Lockheed-Georgia Company's Bob Allen and Bernie Dvorcak, also Navy reservists. They were helping the Egyptian Air Force transition to C-130Hs. Allen took the photo from the ramp of another Hercules. He's an AE1 in VR-54. Flying the transport over the apex of a Giza pyramid is Dvorcak, who is a Navy captain and commanding officer of Atlanta-based VR-54.

The Very Dry Look

VA-82's Ltjg. G. DePrez filmed squadron Marauders aboard Nimitz en route to the Mediterranean. Seems someone got very close to them with a razor.

Doing the Two-Step

on its tail and starboard landing wheels is a Sikorsky YUH-60A utility tactical transport aircraft system helo during Stratford, Conn., tests. The aircraft is being developed for the Army.

And the One-Step

LCdr. Bob Nedry of VXE-6 submitted these photos from his memory book. Lined up for an FCLP hop at Bronson Field nearly 20 years ago are T-28s. How many know what the LSO's extended leg signal means?

Hand Me That Hook

Crewman of USS Blue Ridge (LCC-19), unhooks deployment cable while hand from the helo reaches out. The CH-46D is from HC-3 Det 104, operating from USS Mars (AFS-1). PH3 R. L. Curtis took this picture in 1975.

PEOPLE PLANES AND PLACES

Search and Rescue

A mountain climber stranded on a ledge in Yosemite National Park was lifted from his precarious perch and flown to safety on Easter Sunday by a Lemoore SAR crew. HM3 D. A. Vezina rappelled down to the ledge while pilot Lt. K. J. Sullivan positioned the helo in a hover only 10 to 15 feet from the cliff wall until Vezina and the climber were aboard.

In early May, a Lemoore crew airlifted a 52-year-old trail bike rider out of a remote area of the Sierra Nevada Mountains 20 miles from the nearest road. He had fallen and injured his leg. As that crew returned to base, the standby SAR crew took off to aid two climbers marooned by bad weather on the 3,000-foot rock face of El Capitan in Yosemite. The helo lowered supplies, equipment and a radio to the stranded climbers.

On another day, the SAR unit at Lemoore was called on to transport a team which ordinarily picks up premature babies needing special care and transports them in a Cessna to the intensive care unit at Valley Children's Hospital. The Cessna was under repair and a premature baby at Vandenburg AFB needed emergency care. Lemoore's *Angel Three*, crewed by Lt. Gary Schlabaugh, Ltjg. John Sullivan, AMS1 William Noe and AT3 R. M. Moreno went to the rescue. In a short time, James Westphal, son of an Air Force serviceman, was responding to emergency intensive care at Valley Children's Hospital.

Another baby, a three-and-one-half-week-old girl, in Keflavik, Iceland, needed the special coronary care facilities at Bethesda Naval Hospital. VP-45 Crew One, skippered by LCdr. Paul Dykeman, flew the baby, her parents and a medical team more than 2,500 miles to Andrews AFB in Washington, D.C. An Air Force helo was waiting and took the infant and her parents to Bethesda.

A Key West SAR helo was used to rescue two people after their cabin cruiser sank in five to six-foot seas about 37 miles off Key West. The crew first flew a pump to the boat, which was taking on water. However, the water was coming in too fast for the pump to handle and the boat began to break up. The helicopter moved in to pick up the survivors, who by then were in a life raft, and transported them to Key West. The crew included the pilots, Lieutenants junior grade Dave Brown and Richard Rolfe with ADC Thomas Kelly and AD3 Thomas Mulling.

While *Franklin D. Roosevelt* was steaming off the coast of Spain in April, a carrier helicopter crew rescued four men from a 26-foot sailboat in heavy seas. AD3 William L. Kovatz entered the water and rigged the rescue sling hook-up for each of the men. The helo then flew the survivors to a Spanish Navy helicopter carrier for return to shore.

At Point Mugu, a VXE-6 flight crew located a cabin cruiser and its crew of two who were having difficulty in high seas about 46 miles off Santa Barbara. Weather conditions were rapidly deteriorating when the Coast Guard called for assistance. LCdr. John Aranyos, Ltjg. Ray Danner and PO1s Tom Elder and Bruce Mabley, who were performing a routine flight check in an LC-130, spotted the cruiser and reported its position to the Coast Guard which escorted the boat back to harbor.

A SAR team from Fallon rescued a group of hikers trapped by a snowstorm in the Desolation Valley Wilderness Area. Contacted by the Eldorado County sheriff's office, the team flew into the Sierras where they located the four hikers stranded on a cliff at the 8,000-foot level about three miles west of Emerald Bay at Lake Tahoe. Because of the altitude and treacherous wind conditions, the crew had to unload all excess equipment. At the rescue site, AMH2 Paul Moorehead was lowered, and although hampered by deep drifting snow, he reached the hikers and brought them under the hovering helo. They were lifted one by one and taken to the South Lake Tahoe airport.

Other crewmen were Lt. Philip Tetlow, AE2 Marty Matson and HM1 Mike McDonald.

Four teenage boys were rescued from a cliff in the Three Fingers Mountain area of Washington by a Whidbey Island crew. They had been without food or adequate clothing and were found after a four-day search by a ground rescue party which could not bring them out because of severe avalanche conditions. They were suffering from exposure when the SAR team hoisted them aboard the CH-46, from a narrow ridge at 6,500 feet, and transferred them to the rescue party's base camp.

LCdr. Andy O'Brien, Lt. Tom Wall and AW2 Brian Paul, HS-75 reservists at Lakehurst, were suited up for a routine test flight in an SH-3 prior to leaving for two weeks' AcDuTra at Jacksonville. A call came from a hospital in New Jersey where a cardiac arrest victim was in need of immediate transportation to New York Hospital in Manhattan which had the special equipment the patient needed. The patient required special care within an hour. In minutes the helo, the patient and a medical team were on their way to a small heliport in the shadow of New York's 59th Street bridge. There an ambulance transferred the patient to the hospital.

On remote Daufaskee Island off the South Carolina coast, a two-and-one-half-year-old boy was critically burned at his home. Within 15 minutes after receiving the call an MCAS Beaufort SAR crew landed its CH-46A in the boy's back yard, loaded the youth aboard and took him to Beaufort Memorial Hospital while HM3 L. Rice monitored his condition. The crew was skippered by 1st Lt. Jerome E. Pendzick. The SAR unit at Beaufort consists of six crews with five members each under the command of Capt. John F. Gale.

During joint service exercise *Solid Shield '77* all the necessary units were on hand to carry out a successful rescue when a small civilian aircraft crashed in a swamp area 18 miles from Wilmington, N.C. At the request of the FAA, the helicopter direction center aboard USS *Guadalcanal* began rescue operations. Two HMH-461 *Cobras* on a training flight started the search. After the four uninjured occupants of the plane were located, a Marine CH-53 picked them up and flew them to Wilmington. *Guadalcanal*, skippered by Capt. Allen Crandall, was providing support for Marine helos of the 4th MAB during the exercise off the coast of North Carolina.

An F-14 from *JFK* escorts a Russian *Bear-D* during recent NATO exercises. A VFP-63 Det Two pilot, Lt. R. L. McLane, photographed the event from his RF-8G.

Records:

HMM-774, MARTD Norfolk, marked a milestone in early May when it surpassed 10,000 accident-free hours. The record flight took place during a monthly reserve drill weekend on a three-plane-formation training flight of CH-46s led by Maj. Tom Choate, C.O.

LCdr. John Pieno, ops officer of *Intruder* squadron VA-176, became a four-time centurion aboard *America* during the carrier's operational readiness evaluation. He has logged over 750 arrested landings on ships he has served aboard.

Two of VA-56's *Nuggets* became centurions aboard *Midway* recently. Lt. John Wood became a quadruple centurion and Lt. Dick Seebald a triple, just missing 400 traps. Lt. Wood also became a member of the *Corsair II* 1,000-hour club, along with Cdr. R. F. Smith, C.O., and LCdr. Dave Finney. In April, Finney flew the last squadron A-7A from *Midway* to Cubi Point where VA-56 is transitioning to the A-7E.

Cdr. L. D. Presnell, C.O. of HM-12, has accumulated over 5,000 hours of flight time since 1961 in 15 different types of rotary and fixed wing Navy aircraft.

Crewmen of *Nimitz*, winner of the Atlantic Fleet Battle E, are among the first to wear the Navy's newly issued Battle E ribbon. The tricolor ribbon with an E against a dark blue background ranks

immediately following the Meritorious Unit Citation.

VA-66 marked its third year of accident-free flying in May aboard *Independence* in the Med. In those three years the *Waldos* completed a North Atlantic, two Caribbean and two-and-one-half Med cruises. They amassed over 11,000 flight hours and made 2,500 traps, flying A-7Es.

The daughter of Egyptian president Anwar Sadat, Loubna Abdel Ghaffar, visited USS *John F. Kennedy* with her husband during the carrier's recent visit to Alexandria, Egypt. Lt. T. M. Bucchi, VF-14, escorted Mr. and Mrs. Abdel Khalek Abdel Ghaffar on a tour which included a look at the squadron's *Tomcats*.

When the *Firebirds* of VA-304 pitted their A-7As against the air-to-air gunnery targets of VC-13's *Saints*, both reserve squadrons were on a weapons training deployment to Yuma. The shoot was a competition among the pilots of VA-304, with awards for the hit closest to the bull's-eye and for the highest percentage of hits. Both events were won by LCdr. Frank Bender, squadron ops officer.

Ltjg. Chandler of HSL-34 Det 8 builds model aircraft, not from plastic but from wood and from scratch. His last three models shown here are of Navy helicopters he has flown: the TH-57 *Ranger*, TH-1L *Huey* and the SH-2F *Seasprite*. He constructed the latter to a 1:72 scale. The project took over 400 man-hours. All three models are on display at the Naval Aviation Museum, Pensacola.

Lieutenants Mike Waite and Bud Jupin of VA-145 recently logged 1,000 hours in the A-6.

The *Diamond Backs* of VMA-131, Willow Grove, have received the Pete Ross Trophy for 1976.

The safety award is given annually to a 4th Marine Aircraft Wing light attack and/or fighter squadron for its performance, with emphasis on pilot training and flight safety.

The award is a tribute to the late 1st Lt. Joseph F. Ross, USMC, a former pilot with VFM-121, MARTD Glenview, who was killed in an aircraft accident in 1950.

LCol. G. Richard Omrod is C.O. of the *Diamond Backs*.

HS-10 was recently presented the annual Sikorsky Aircraft Superior Helicopter Maintenance Award by RAdm. C. J. Kempf, Commander, Antisubmarine Warfare Wing, Pacific Fleet. Accepting was C.O. Cdr. J. J. Higginson.

The award, established in 1975, is presented annually to an East and West Coast squadron in recognition of the most outstanding maintenance department among H-3 squadrons.

HS-10 was the first squadron on the West Coast to receive this award, achieving an average operational ready rate of 80.6 percent from January 1 to December 31, 1976.

The beginning of a new breed and the last of an old one: At NAS Rota, Ens. Jane Odea, VR-24 pilot and a graduate of the first class of women in flight training, makes a preflight check of a *Tracker* with ACCM Ron K. Jones, the last enlisted pilot in the Navy. He is stationed at NAF Mildenhall, England.

VF-202, Dallas, recently took part in a successful missile firing exercise at Miramar using eight *Sidewinders* and four *Sparrows*. One of Navy's female jet pilots, Ltjg. Mary Lou Jorgensen of Miramar's VC-7, accompanied LCdr. Bob Kiral, VF-202, in the observer aircraft, an F-4N, during the firings.

At the 29th annual symposium of the Naval Test Pilot School, Patuxent River, Lt. Charles W. Woomer of the rotary wing aircraft test directorate was named test pilot of the year. Lt. W. Anderson was named outstanding test project naval flight officer of the year and Richard W. Huff became test project engineer of the year. Both are assigned to the strike aircraft test directorate. Featured speaker for the symposium was VAdm. Frederick C. Turner, DCNO(Air Warfare).

VP-26, NAS Brunswick, has won two prized awards, the Arnold Jay Isbell Trophy for ASW excellence (for the second consecutive year), and CNO's Golden Wrench Award for the best P-3 maintenance. The *Tridents*, led by Cdr. Sam Yow, take pride in the fact that even though today's maritime patrol squadrons differ from their forebears in aircraft and support equipment, their spirit and dedication to the basic mission are the same.

Another winner of the Arnold Jay Isbell Trophy is VS-22, based at Cecil Field, under the command of Cdr. J. M. Bowers, Jr. The squadron which flies the S-3A, is back home after a Med deployment.

Changes of command:

CVWR-30: Cdr. Riley D. Mixson relieved Cdr. N. D. Campbell.

VA-12: Cdr. David R. Edwards relieved Cdr. Gary W. Mau.

VA-52: Cdr. William R. Galbraith relieved Cdr. Daryl L. Kerr.

VA-66: Cdr. Stuart J. Fitrell relieved Cdr. Robert T. Davis.

VA-86: Cdr. Herbert W. Taylor relieved Cdr. L. W. Smith.

VAQ-138: Cdr. Roger L. Newman relieved Cdr. Edward A. O'Neal.

VMFA-323: LCol. Hardy A. Slone relieved LCol. William W. Mackey.

VMFP-3: LCol. William W. Mackey relieved LCol. Michael S. Gering.

VP-19: Cdr. Andrew C. A. Jampoler relieved Cdr. Gerald R. Schroeder.

VP-49: Cdr. R. M. Howard relieved Cdr. W. C. Bloh.

VP-69: Cdr. James P. McElhenny relieved Cdr. Alfred G. Wykoff.

VXE-6: Cdr. James W. Jaeger relieved Cdr. D. A. Desko.

H&HS-38: Maj. Gerald R. Magliano relieved LCol. Gerald F. Dooley.

HMA-169: Maj. Robert G. Clapp relieved LCol. Jimmy A. Creech.

HMH-772: Maj. Leonard Bieberback relieved LCol. Austin L. Beveridge.

MABS-11: LCol. R. I. Harris relieved LCol. H. A. Slone.

MATCS-38: LCol. Gerald F. Dooley relieved Maj. James W. Hardy.

MWHS-3: Col. James D. Pierce relieved Col. Vincent P. Hart, Jr.

RVAH-12: Cdr. David A. McRae relieved Cdr. Victor A. Karcher.

JFK: Capt. Jerry O. Tuttle relieved Capt. John R. C. Mitchell.

Lexington: Capt. Eugene R. McDanniel relieved Capt. Thornwell F. Rush.

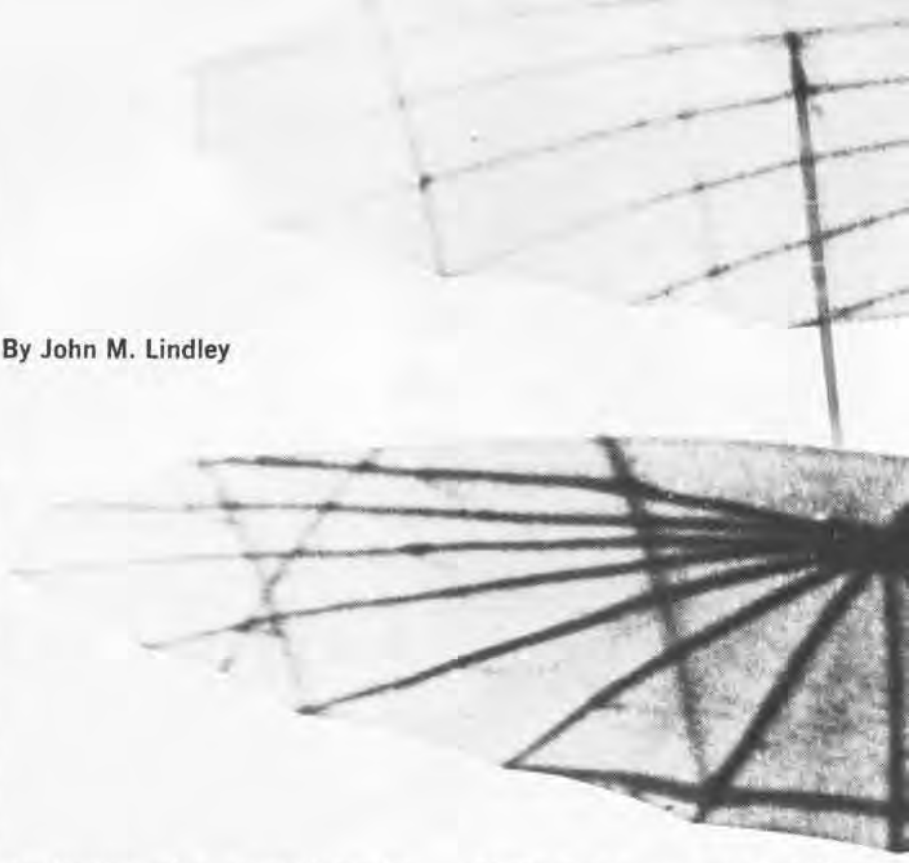
This *Intruder*, No. 155694, ended the nearly-11-year A-6A era at Whidbey Island when it made its final bombing run, appropriately scoring a bull's-eye. Plane captain ADAN Peter Echanove signals VA-145 C.O., Cdr. Vince Huth, to bring his aircraft forward for the flight.

A History of Sea-Air Aviation

Wings Over The Ocean

part two

By John M. Lindley

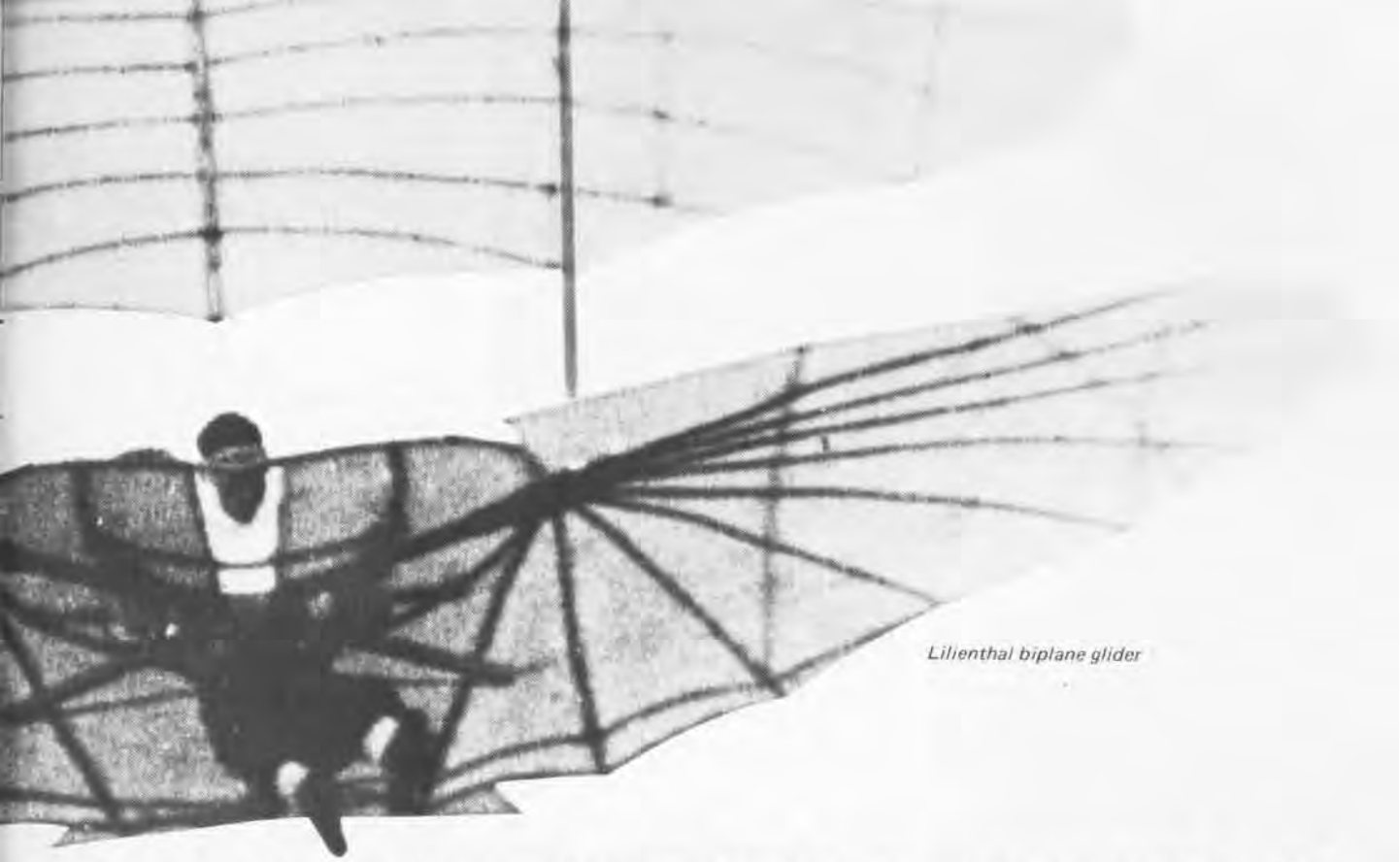


Within a few years after these path-breaking flights by the *Lebaudy*, Count Ferdinand von Zeppelin radically altered the nature of airship travel by building dirigibles much larger than anything previously attempted. His first zeppelin (LZ-1) was a rigid type that was 420 feet long and 38 feet in diameter. It made its first flight from a floating hangar on Lake Constance in Germany on July 2, 1900. Zeppelin was a retired German army officer who visited the United States in 1863 as a military observer of the Civil War. While he was in America, Zeppelin traveled to St. Paul, Minn., where he made his first ascent in a balloon. Zeppelin subsequently reasoned that if he could string a number of balloons in line within a streamlined framework, the resulting dirigible could be both propelled and steered. He subsequently brought this idea to maturity in the LZ-1 which had 24 longitudinal girders and 16 transverse rings made of aluminum. Between each ring was a separate rubberized cloth cell filled with hydrogen. Over the entire framework and series of gas cells was a cotton cloth which served to protect the interior structure and to present a smooth shape to the wind. Beneath the airship, Zeppelin mounted two external cars on a keel-like structure. Each of the cars contained a 16-hp motor geared to two propellers which could drive the dirigible at speeds of nearly 20 miles per hour. Zeppelin achieved vertical control of the LZ-1 with a sliding weight on the keel, and he managed horizontal control with rudders.

Paradoxically, the construction of a practical airship at the turn of the twentieth century occurred almost simultaneously with the Wright Brothers' development of a practical heavier-than-air flying machine between 1903 and 1905. The Wrights' achievement was the more spectacular of the two aviation breakthroughs for several reasons. Although men had been designing or building flying machines, usually along the lines of an ornithopter, for at least 400 years prior to the Wrights' aircraft, by 1900 more was generally known and understood about the flight principles or the science of aerodynamics of lighter-than-air craft than of flying machines that were heavier-than-air — despite the fact that the balloon was not invented until 1783. In addition, the aeronauts of lighter-than-air craft achieved practical control and propulsion of their craft once Benz and Daimler independently built the first gasoline engines. The Wrights and other experimenters in heavier-than-air aviation at the turn of the twentieth century not only depended upon the development of fuel and engine technology, as had their colleagues in airships, but they also depended on the parallel development of the technology of structures and airplane configuration, airscrew (or propeller) design, the science of aerodynamics, and lastly, the principles of flight control.

Unlike their counterparts in lighter-than-air craft who could get their dirigibles into the air and keep them there for a considerable period of time while they experimented with various types of engines and control mechanisms, those who worked with heavier-than-air craft lacked this luxury of substantial time for flight testing. For the pioneer in heavier-than-air craft, air time was measured in seconds. For example, the Wrights' historic first flight on December 17, 1903, lasted only 12 seconds, and the total for all four flights made by the brothers on that day was only 99 seconds. Flight by heavier-than-air craft was, in comparison with balloons or dirigibles, an exceedingly complex problem.

Nevertheless, restless and inquiring minds had struggled with the problem of heavier-than-air flight since the fifteenth century, at least. Leonardo da Vinci, the famous Italian artist and sculptor, investigated the problem of flight, making drawings of flapping-wing machines modeled after birds or bats. He is credited with having invented an aerial screw or propeller, made small helicopters and proposed the concept of the parachute. As one of the greatest intellects of his time, Leonardo refined and



Lilienthal biplane glider

extended the hesitating speculations of his predecessors about the problem of human flight. Yet Leonardo did not do much more than produce a handful of tentative sketches and drawings. He never tried to define the problem of flight.

Sir George Cayley made the first guiding definition of the problem of flight. Cayley was a wealthy member of the British aristocracy who had a great passion for science. For nearly 50 years he tried to understand the principles of flying. Although Cayley did make a helicopter in 1796, and he foresaw the possibility of some sort of airship and worked with kites and gliders, his greatest contribution to aviation came in the area of the science of aerodynamics. As a result of his experiments with a "whirling arm" machine which he used to study the resistance of the air to objects in motion, Cayley defined the problem of human flight as the goal of making "a surface support a given weight by the application of power to the resistance of air." Here was the solution to flight in a nutshell!

Unfortunately, others in the primitive field of aviation failed to recognize the importance of Cayley's signposts in aerodynamics until the 1870s. In the meantime, William S. Henson made an airplane called the Aerial Steam Carriage in 1842-43. Henson's craft was a monoplane with a rectangular wing that was to be powered by a steam engine with six double-bladed propellers. It even included a tricycle undercarriage and double-surfaced cambered (curved) wings. John Stringfellow, an engineer who was in the British lace trade with Henson, agreed to build the steam engine for the *Ariel*, as the craft was called. When Henson lost interest in this effort in 1847, Stringfellow carried on with the project. He launched the *Ariel* from an overhead wire the following year, but the craft probably did not fly. What was important about the Henson-Stringfellow collaboration on the *Ariel* was not the success or failure of this flight trial; instead it was the tangible form which the two men gave to the "airplane idea." By improving the design of Henson and Stringfellow, perhaps someday someone might just build a craft which could fly.

Nearly 20 years after the launching of the *Ariel*, Francis Herbert Wenham, a British marine engineer, presented a paper to the Aeronautical Society on the flight of birds titled "Aerial Locomotion." Wenham pointed out that birds' wings are cambered with the thickest portion along the leading edge. From this observation he concluded that "such a wing, at a small angle of incidence, derived most of its lift from the front portion; hence . . . a long narrow wing would be the best type of wing for lifting. . . ." Wenham also reasoned that the greater the number of wings, the greater the total lift. Here was the first formulation of the idea for a biplane. Wenham's 1866 paper had broken new ground in the infant field of aerodynamics and it had also retrieved a line of thought first explored by Cayley, thus serving as a signpost for future pioneers in aviation.

Significant new work in aviation in the last third of the nineteenth century roughly fell into two categories

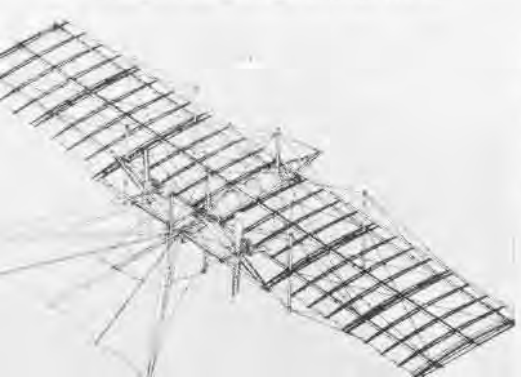
Langley houseboat with Aerodrome (1903)

or streams of development. One stream, which Cayley and Wenham inaugurated, concentrated on the problems of aerodynamics, particularly the problem of wing design and lift. It led quite naturally to the study of gliding in an attempt to master the problem of how to fly. The other stream, the effort to solve the problem of powered flight, followed roughly the initial work done by Henson and Stringfellow (although both men also made significant contributions to aerodynamics and gliding).

In the stream of development concentrating on powered flight, Felix du Temple of France is credited with having made, in 1874, the first successful attempt at powered flight. His steam-powered monoplane machine carried a man as it took off down a ramp, stayed in the air for a few seconds, and then landed safely. The second assisted, powered takeoff came in 1884 when another steam-powered airplane modeled after Henson's *Ariel* took off down a ramp and was airborne for 65 to 100 feet. The craft had been built by A. F. Mozhaiski, a captain in the Imperial Russian Navy.

At the same time that Mozhaiski was working in Russia, a prosperous French electrical engineer named Clement Ader was building heavier-than-air machines in France. In 1890 he tested a bat-formed monoplane powered by an 18-to-20-hp steam engine which drove a tractor propeller. Ader claimed that this machine, which carried a passive human pilot, covered 165 feet. The records concerning this and other subsequent flights are obscure and the results uncertain. It is doubtful that any of Ader's machines actually flew; nevertheless, his work is important because he seemed to have proved to others in aviation that it was possible to get an airframe off the ground if it were fitted with a powerful enough engine.

Henson's aerial steam carriage (1842)



Sir Hiram Maxim, the inventor of a machine gun, built the first heavier-than-air machine that lifted itself off level ground. He had begun by building flying machines in the 1880s and had done some work testing airfoils in a wind tunnel. In 1893 Maxim began to build his final flying machine. When it was completed, the machine weighed more than 2½ tons when carrying fuel and a crew of three. Rather than try his "monster" of a flying machine in a free flight, Maxim mounted it on a track, an arrangement which would also facilitate testing the performance of the machine. The machine made several runs down the track in 1894 before it crashed due to a mechanical failure involving the track. Maxim argued that these tests had shown that the craft developed 10,000 pounds of thrust, a force sufficient to have lifted it into the air had it been free of the track.

While Ader, Maxim and others were trying to hurl a flying machine into the air by mounting a powerful engine on an airframe, Jean Marie Le Bris and Otto Lilienthal were exploring the possibility that flight could be mastered through gliding. Le Bris was a French sea captain whose study of the albatross led him to take up gliding. In 1854 or 1855 Captain Le Bris built a full-sized glider with a 50-foot wingspan which he pulled into a 12-mph wind with the aid of a horse-drawn cart. The glider soared for about 300 feet before coming back to the earth. When Le Bris tried a later takeoff over a quarry, he fell, breaking a leg and smashing the glider.

Otto Lilienthal, a German, subsequently perfected the art of flying a glider. Lilienthal was trained as an engineer and began his aviation studies in the early 1870s. Like so many others in the pioneering stages of aviation, he had become interested in flight while watching the birds near his home. He studied the flight of birds so intensively that he wrote a book, published in 1889, setting forth his ideas about bird flight as the basis for human flight. Convinced that man could fly, Lilienthal devoted his energies to flying fixed-wing gliders. Lilienthal's reason for concentrating on glider flight can be inferred from a comment he once made about balloons: "The balloon has been of no assistance to real aviation; nay it may even be considered as a direct brake upon the progress of this technique, because it split up the energy and directed the investigation which should have been devoted to dynamical flight into wrong channels." In other words, gliders rather than balloons would unlock the secrets of the dynamics of flight and make possible the invention of a true flying machine.

Using the fixed-wing or hang glider from which the pilot hung by his arms and which he controlled by shifting his body, Lilienthal began serious study of "dynamical flight." By 1894 he was making controlled glides of up to about 1,150 feet. He was able to achieve these long flights because he had found through examination of bird wings and plant seeds that a curved wing with a thickened leading edge had superior lifting capacity in comparison with a flat wing. In all, Lilienthal made over 2,000 glider flights, many of them from a 50-foot artificial hill which he had built on the plains near Berlin. One day in 1896 when Lilienthal was making a glide, a gust of wind caused his glider to stall and then to crash. The resulting accident broke Lilienthal's spine and he died the following day, August 10. Despite this tragic and untimely death, Lilienthal and his work in aviation would not be forgotten. The Wright Brothers would refine his glider techniques and bring the study of "dynamical flight" to maturity.

Lilienthal was only one of several contemporaries of the Wrights who were working on the problem of flight. One of these men, the French-born American civil engineer Octave Chanute, directly influenced the brothers from Dayton, Ohio. His fame in the history of aviation is based, in part, on his having been the first great historian of human flight and an influential intermediary and disseminator of aeronautical information between Europe and the United

States. Because he had worked with man-carrying gliders, Chanute could appreciate to some degree the accomplishments of the Wrights in their gliding experiments of 1900-1902. In addition he was a friend and moral supporter who helped the Wrights weather some discouraging setbacks. In addition to his other contributions to aviation, Chanute also introduced the Pratt-truss method of rigging a biplane which the Wrights utilized in their biplane gliders and flying machines.

Unlike Chanute, Samuel P. Langley was known to the Wrights only by reputation. Langley was a distinguished mathematician and astronomer who had become in November 1887 the Secretary of the Smithsonian Institution. The year before he received this appointment, Langley had begun studying aerodynamics by constructing a whirling-arm machine which he used to evaluate the resistance of a plane surface to the air. His experiments convinced him that curved or cambered surfaces were more efficient aerodynamically than flat plates. Armed with this information, Langley proceeded to calculate mathematically that the steam engines then available could, in theory, get a flying machine off the ground.

In 1892-93 Langley began to build model flying machines, called aerodromes, powered with steam engines. After repeated attempts to get one of these models to fly, he succeeded on May 6, 1896, when one aerodrome covered a distance of 3,300 feet. Since Professor Langley conducted these flight tests over water, they were an early tentative step toward flight operations over the ocean. When war broke out with Spain two years later, the U.S. Army accepted Langley's proffered help. They provided him with $50,000 to use in building a man-carrying flying machine. Langley plunged into this project with vigor. He hired Stephen M. Balzer of New York to build a gasoline engine weighing not more than 100 pounds and producing at least 12 horsepower which could supply the necessary power for a full-size flying machine. Balzer was unable to build the engine to Langley's specifications, but Langley's assistant, Charles M. Manly, took over the Balzer engine, redesigned and modified it, and produced an engine that weighed 207.5 pounds and

The Wrights

was capable of producing 52.4 horsepower at 950 revolutions per minute when tested in 1902.

The following year, Langley completed construction of his full-size flying machine which he called *Aerodrome A*. It was a tandem-wing monoplane which together with its pilot weighed about 730 pounds. Langley mounted the aerodrome on an 80-foot catapult atop a houseboat on the Potomac River near Washington, D.C. Manly volunteered to act as the pilot. The first test flight of *Aerodrome A* came on October 7, 1903. The flight of the aerodrome was very brief because after launching it tumbled over the end of the catapult and fell into the Potomac. Langley blamed the failure on the catapult mechanism and hastily prepared for another trial which took place on December 8, 1903. This test was even more disastrous than the first, and Manly almost drowned when the aircraft splashed into the river. Since these trials were held in public, the newspapers hooted and howled over Langley's folly in building a flying machine and then wasting the taxpayers' money when it failed to fly.

Octave Chanute

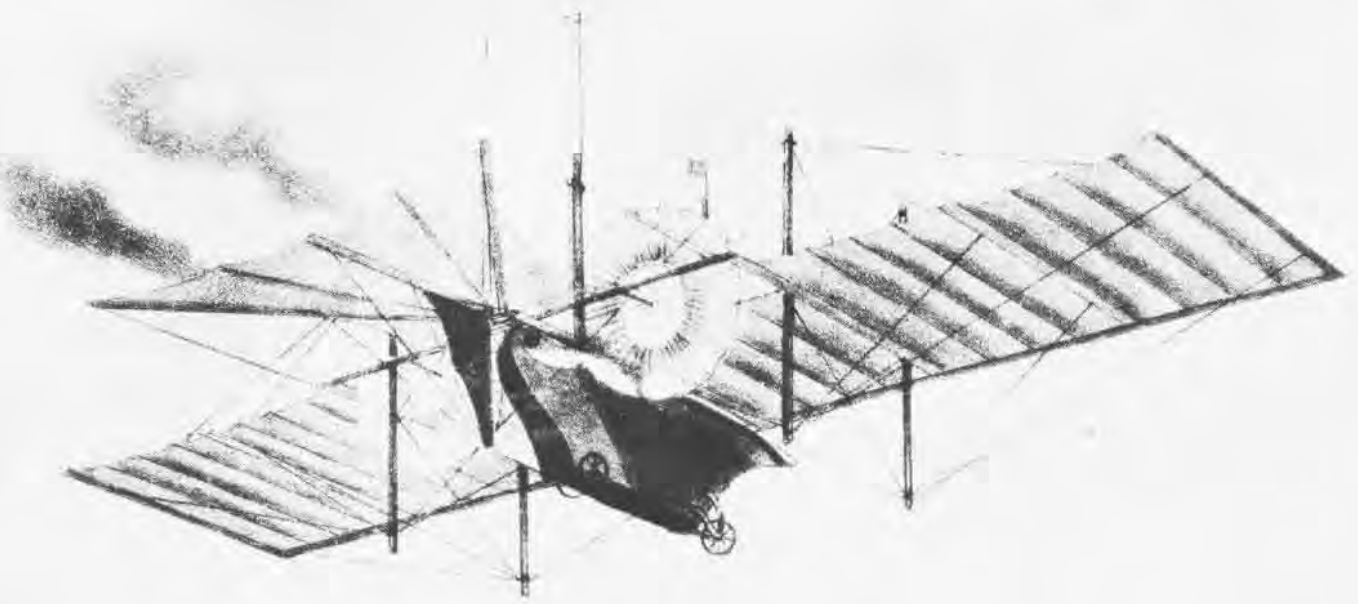
Stung by all the criticism and unable to get his aerodrome to fly, Langley gave up on his flying machine. He died three years later.

Although one historian of aviation has concluded that Langley's "technical influence on aviation was virtually nil," he was important to the Wrights in two respects. First, he was a man of great reputation who took aviation seriously at a time when many felt it was ridiculous. Second, he provided a source of direct competition for the Wrights in 1903. In addition, the launchings of Langley's aerodromes with their disastrous results contrast vividly with the successful flights of the Wrights' machine that year. Contemporaries of Langley and the Wrights probably could not have appreciated the technical and aeronautical distance between the *Aerodrome A* and the Wright *Flyer* of 1903; but it was substantial and significant.

The career and accomplishments of the Wright Brothers have been the subject of a substantial amount of historical literature. A recounting in detail of their work prior to the first successful flights on December 17, 1903, and their subsequent rise to fame has no place in an essay of this length; nevertheless, their work had a profound influence on the subsequent history of sea-air aviation.

Wilbur Wright first learned of Lilienthal's pioneering work with gliders from a magazine article published in 1894. He dated his interest in the problem of flight from the time of Lilienthal's death in 1896. Three years later, Wilbur spent many hours studying the flight of birds in and around his home in Dayton. At the same time he began to read everything he could find on the subject of aviation. Following the lead of Lilienthal, the Wrights decided that they should first build a glider to test their ideas about aeronautical design and to learn how to control their craft while it was airborne, so that they could gradually determine how to fly a powered machine. As Wilbur explained to an audience of engineers in 1901, they spent their time at Kitty Hawk learning to fly gliders because the achievement of stability or flight control "was the *first* instead of the *last* of the great problems in connection with human flight."

To illustrate his point more effec-



Ariel

tively for the engineers, Wilbur then took a piece of paper, held it out and let it flutter to the floor. Having caught the attention of his audience, he explained: ". . . it will not settle steadily down as a staid, sensible piece of paper ought to do, but it insists on contravening every recognized rule of decorum, turning over and darting hither and thither in the most erratic manner; much after the style of an untrained horse. Yet this is the style of steed that men must learn to manage before flying can become an everyday sport. . . . Now, there are two ways of learning how to ride a fractious horse: one is to get on him and learn by actual practice how each motion and trick may be best met; the other is to sit on a fence and watch the beast awhile, and then retire to the house and at leisure figure out the best way of overcoming his jumps and tricks. The latter system is the safest; but the former, on the whole, turns out the larger proportion of good riders. It is very much the same in learning to ride a flying machine; if you are looking for perfect safety, you will do well to sit on a fence and watch the birds; but if you really wish to learn, you must mount a machine and become acquainted with its tricks by actual trial."

In this homely comparison between learning to ride an untrained horse and learning to handle a flying machine, Wilbur Wright repeated a point that the ancient myth-makers had made long ago: Bellerophon first had to obtain control over Pegasus with the golden bridle.

What, then, was the Wrights' "golden bridle?" It was the principle of "wing warping" or twisting combined with the concept of a movable tail. Lilienthal had attempted to control the flight of his gliders by having the pilot shift the weight of his hanging body which altered the center of gravity of the glider, thereby maintaining the balance of the craft. In contrast, Wilbur Wright discovered that he and Orville could achieve lateral control over their glider by "twisting the wings so as to present their ends to the wind at different angles." The twisting of the wing ends was achieved by means of a series of cords and pulleys fastened to a cradle that the prone pilot moved with his hips. Thus, whenever the pilot of the Wrights' glider felt he was losing lateral balance, he moved his hips in the cradle which twisted the wing tips and presented a changed wing angle.

With the hip cradle providing for wing warping, the pilot had both hands free to manipulate the elevator which gave fore-and-aft control to the glider. Wilbur Wright introduced the idea of a movable vertical tail during the gliding experiments of 1902 as a way to prevent spinning and sliding. Unlike his predecessors, who had used a tail like a ship's rudder for steering their gliders or aircraft, Wilbur used the tilt of the wings resulting from wing warping to effect turning movements. The movable tail served to increase the balance and control of the glider. Initially the Wrights combined the tail control with the hip cradle to avoid having three separate controls, but in 1905 they redesigned their control systems so that the hip cradle controlled wing warping, the right hand operated the rudder and the left hand controlled

William S. Henson

the elevator.

Having found in their glider experiments that wing warping and a movable tail would provide control over the glider, the Wrights knew they had overcome a major obstacle in the development of human flight. Ahead of them lay the problem of finding a suitable engine and of mounting it on a modified glider airframe so that they could try to achieve powered flight. John Evangelist Walsh, the most recent biographer of the Wrights, sums up their work with gliders as follows: ". . . it may be said that, in a way, the day on which man finally conquered the air was . . . Friday, October 10, 1902. For, as Wilbur had insisted from the start, the whole problem of human flight was the achievement of control, not the designing of light motors. An engine and propellers were, so to speak, merely more efficient substitutes for wind and gravity. There was no doubt that a glider which could, under all conditions, be controlled in a descent of a few hundred feet, could with modifications be made to fly on and on, to unpredictable distances, once it carried its own source of power."

This is, of course, exactly what the Wrights did in 1903. With the help of Charles E. Taylor, they built a lightweight 12-hp engine, modified the glider design for mounting an engine and two propellers, and proceeded to test the first Wright *Flyer* successfully on December 17th, just nine days after Langley's aerodrome failed for the second time. By 1905 the Wrights had perfected a practical flying machine. By the end of 1908 they had shown the world, at home and abroad, the superiority of both their *Flyer* and their method of flight control over all the primitive and rudimentary flying machines and methods of their competitors.

What had the Wright Brothers achieved? They were the first men to master glider flight. In fact, the glider never lost its appeal for the Wrights. Almost as a tribute to the teaching and training qualities of the glider, Wilbur Wright returned to gliding in 1911 to make further aerodynamical studies. During this experimental work, he set an endurance record of 9 minutes 45 seconds which lasted until 1921. But the Wrights are not primarily remembered today for their work with gliders. Their place in the history of aviation is secure because they were the first men to make powered, sustained and controlled flights in an aircraft and to land on ground as high as that from which they took off (1903). They had also designed, constructed and flown the first fully practical airplane (1905). This flying machine would take off and land without damaging itself or its pilot. It could fly straight, turn or circle with ease. Lastly, they were the first to construct and fly a practical airplane which could carry passengers (1908).

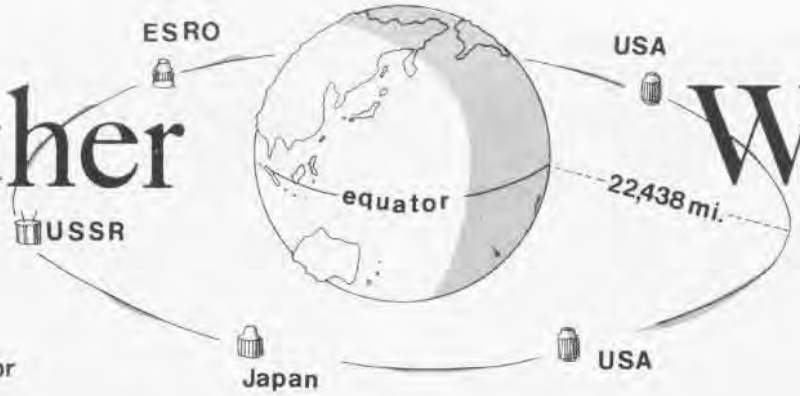
For the history of sea-air aviation, the Wright Brothers are important for more than what they accomplished in pioneering human flight. As the inventors of the first successful airplane, they belong to the tradition of Daedalus the artificer. Although they had little formal education in engineering, Wilbur and Orville were skilled craftsmen in both wood and metal. In addition, they worked carefully and systematically, testing each glider or *Flyer* piece-by-piece before trying to fly it. Their wind tunnel and other aerodynamical studies were consistent with the most careful experimental methods of science. Their study of the problem of flight control with both gliders and flying machines was also highly systematic. Thus they shared with Daedalus a skill in design and invention second to none. They too, like Daedalus, flew the product of their labors, but instead of flying with feathered wings, they flew with a powered machine.

The Wrights were practical men. They wanted to make a fortune from their invention. Consequently, when they decided to sell their flying machine in 1906, they turned to a buyer whose financial resources were both vast and impeccably sound, the U.S. Government. In choosing to try to sell their invention to the U.S. Army, the Wrights openly acknowledged its potential as a weapon of war. In late 1905 Wilbur had written to an officer of the French army about the sale of the Wright *Flyer*. In this letter he expressed what he foresaw as the military value of their airplane: "With Russia and Austria-Hungary in their present troubled condition and the German emperor in a truculent mood, a spark may produce an explosion at anytime. No government dare take the risk of waiting to develop practical flying machines independently. To be even one year behind other governments might result in losses compared with which the modest amount we ask for our invention would be insignificant."

Wilbur and Orville saw that getting rapidly from one place to another by means of a flying machine was not the only use for their invention. Just as Bellerophon found a formidable weapon in Pegasus which could help him to destroy the Chimaera, so also the Wrights foresaw the potential of the flying machine as a weapon of war. They would have preferred to see their invention used only for peaceful purposes, but they were realistic enough to understand the advantage a flying machine would give to whichever government possessed it. Whether wittingly or not, by the end of 1908 the Wrights had brought together the tradition of Daedalus, the inventor, with the tradition of Bellerophon and Pegasus, the masters of aerial warfare.

To be continued

Weather Watch



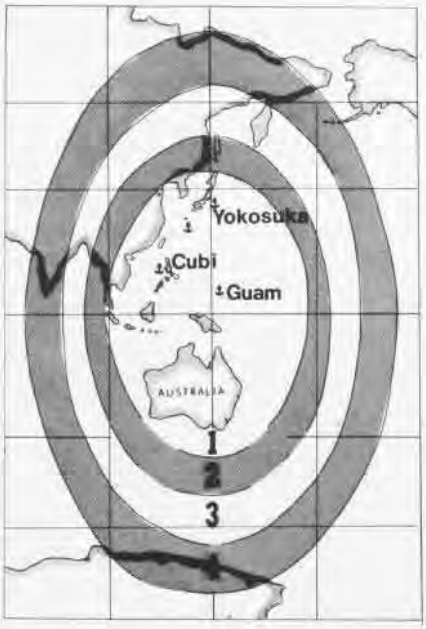
By Cdr. Neil F. O'Connor

Meteorological support routinely provided to Naval Aviation in CONUS includes a satellite picture which is never more than a few hours old. With the National Oceanic and Atmospheric Agency's GOES (geostationary environmental satellite), many weather stations across the U.S. have the capability to receive detailed images of clouds and storms nearly every 30 minutes and views of weather systems over one-fourth of the globe every half hour at night.

GOES, the descendant of earlier NASA experimental applications technology satellites, is in an orbit 22,300 to 22,500 miles over the equator. Because the satellite and the earth at the equator are traveling at the same speed — 6,800 miles per hour — it appears as though the satellite is suspended above the same spot, hence the term GOES.

Unfortunately, the location of the U.S. GOES is too far to the east for use by the Seventh Fleet in WestPac. However, that shortcoming was rectified when a 100-foot-long *Thor Delta* rocket blasted off from the Kennedy Space Center with a promise for all WestPac units. The payload of the 90,000-kg launch vehicle is the government of Japan's contribution to the world weather watch program of the World Meteorological Organization. Japan's satellite will be placed into orbit directly over the equator at 140 degrees E. The Japanese call their weather platform a geostationary meteorological satellite (GMS). It is the third in a planned program of five. The U.S. already has two GOES in operation while the European Space Research Organization consortium, which includes Belgium, Denmark, West Germany, France, Italy, Sweden, Switzerland and the UK, expects to launch its late this year. The Soviet Union, interestingly enough, plans to place a GOES in orbit over the Indian Ocean in late 1977 or early 1978.

The Japanese satellite, built by Hughes of California and Nippon Electric of Tokyo, is nearly identical to the U.S. GOES. It is approximately



216 centimeters in diameter and weighs about 332 kilograms. The principal sensor on the vehicle is the visible and infrared spin scan radiometer which images the cloud cover both day and night. The daylight scan will have a resolution of less than one mile, while infrared images acquired in darkness as well as in daylight will have a resolution of five miles.

In addition to the regular coverage, the instrument can be commanded to scan smaller portions of the earth. For WestPac, where typhoons are rampant, this feature will allow more frequent pictures of areas where tropical cyclones are developing.

The first three months of the estimated five-year life of the satellite will be taken up with contractor engineering tests. This will be followed with products tests by the Japanese Meteorological Agency, extending through January 1978. Then it is expected that the satellite will be operational and the data made available to any interested user who has the capability to copy the satellite signal.

Initially, GMS will relay pictures to a ground station near Tokyo where they will be computer processed, including enhancement and gridding (the inclusion of latitude and longitude), then transmitted back to the satellite for retransmission to ground receiving stations. It is currently planned to copy the retransmissions at the Fleet Weather Central Guam, which is the principal source of environmental support for the Seventh Fleet.

Although the satellite pictures from the Japanese GMS will not be available for this year's typhoon season, they should be in 1978.

Finally, the 7th Fleet will have a meteorological satellite on its own front step.

Naval Aviation NEWS letters

Professional Flight Instruction

Professionalism is an often ill defined concept as it relates to Naval Aviation and the birthplace of all Naval Aviators, the Training Command.

If it means dedication to the squadron's mission manifested in a tour where 10-12-hour days are routine — Navy flight instructors are professionals.

If it means developing excellent aviator skills through hours of flying inexperienced student Naval Aviators — Navy flight instructors are professionals.

If it means representing Naval Aviation as a precise and demanding task — Navy flight instructors are professionals.

If it means taking pride in junior officers who accept the challenge and meet the demands — Navy flight instructors are professionals.

If it means all of these and more — Navy flight instructors are professionals.

But there are those who believe the flight instructor, professional though he may be, serves his tour in a different Navy, or at least, not the *real* Navy. This attitude has manifested itself throughout the Navy's organization structure. The first tour aviator assigned to the training command must be reviewed by a board toward the end of his tour to determine whether or not he is qualified for a "fleet seat." This same naval officer has trained a significant number of flight students and watched as each of them received orders to the fleet. He, however, the instructor of the best, is often not considered as competent as those he trained. Our own detailers tell us that the Training Command will not kill your career, but will probably not help it either. If this is true, and I suspect that it is, it is easily understood why intensely motivated officers accept orders to the Training Command "kicking and screaming" and why so many of them separate at the end of their tours.

I am convinced that the Naval Aviators in the Training Command are among the most dedicated, industrious and competent aviators and naval officers in the naval service. My tour would be considered very successful by any junior officer in terms of recognition for my professional endeavors. I was, indeed, fortunate. I left feeling there was still a lot more to be done and regretted that I had so little time to contribute.

But more than this, I regretted that all those who left before me appeared extremely happy to leave. This should not be the case. The challenge is to recognize the significance of the duty, the intense desire of those involved to accomplish their mission in the highest traditions, and the current lack of motivation of Naval Aviators to return to the Training Command, and then do what we can to fix it.

E. E. Coris, Lt.
VP-60
NAS Glenview, Ill. 60026

Time Out!

You left some People out of the "People, Places and Planes" section. Among your staff must be one of those people who thinks that helicopters take up too much deck space, or one of those that only thinks about helicopters when he hears Mail Call (and maybe when he has his next emergency on a cold, dark, foggy night). The last article on page 29 of the January 1977 issue has prompted me to write this letter. You mentioned that 15 stranded fishermen were rescued by HS-2, but you failed to mention the names of the pilots and crews who performed the rescues. You only mention the name of the A-7 pilot who sighted the survivors. As a former *Golden Falcon, Chink* and *Hurricane Hunter*, I request that you amplify that article and include the names of the helicopter crews involved, because, after all, rotary wing specialists deserve a little recognition, too.

Paul A. Alfieri, Lt.
SMC #1646
Naval Postgraduate School
Monterey, Calif. 93940

Ed's Note: In response to this letter from Lt. Alfieri, we contacted HS-2 about the omission. We thank Cdr. Richmond for the following letter, the names of the crew members and for making an important point about primary and secondary missions.

In reply to your letter requesting the names of the pilots and crew involved in the rescue of 15 Nationalist Chinese fishermen, I would like to explain my point of view regarding the publishing of these names.

The primary mission of the SH-3D aboard the CV is to provide antisubmarine protection. The ASW mission is one of the most difficult in the U.S. Navy and requires great skill, patience, and continual training. Approximately 90 percent of our ground training time and over 50 percent of our flight time are devoted to ASW training.

The secondary missions of the SH-3D are only limited by the imagination, but typical examples are search and rescue, plane guard, logistics, and passenger and VIP transport. These missions are considered to be "fun flights" and require little or no training beyond the normally rigorous and exacting airmanship demanded of all HS helicopter pilots. It is often exasperating that these secondary missions often result in "news" coverage whereas the really difficult and primary mission is seldom featured, if not often ignored.

In this case, the crews involved in the rescue were briefing for an ASW training flight when the word was passed about the survivors on Kenn Reef. Instead of ASW, they launched for the rescue which involved a 160-mile flight to the reef, a dusk pickup and return flight to the carrier. A rather routine event to us, but certainly of great import to the fishermen.

The two crews were: Cdr. Ed Benshop, pilot; Lt. Tom Oswald, copilot; and AW2 V. I. Clement and AW3 H. D. Silverman, crewmen. Lt. George Olde, pilot; Ltjg. Mike Moran, copilot; and AW2 D. K. Sonnenburg and AW3 S. M. Rose, crewmen.

The *Golden Falcons* enjoy your great magazine very much.

D. G. Richmond, Cdr.
C.O., HS-2
FPO San Francisco 96601

Who Was That Lady?

Just the other day I found in my files a picture of the aviation unit of USS *Arizona*, taken in 1932, I believe, when the unit was sent from Long Beach to Hartford, Conn., to take delivery of two Chance-Vought O2Us and fly them to NAS North Island. I wonder if any old salts remember.

The senior aviator was Earl McKellar; next, Bob Lockhart (USNA Class of '24); me, a lieutenant junior grade; and a young ensign (former Naval Aviation Cadet), whose name, I am ashamed to say, I cannot seem to remember.

But I do remember that we stopped at Phoenix, Ariz., on the way back and they gave us quite a welcome.

The lady who had broken the bottle of champagne over *Arizona's* bow at her

launching was living in Phoenix. And since she had never been up in an airplane, Earl decided she should have her first ride in an *Arizona* plane. He designated me to take her for a flight (very non-reg), which I did.

Well, maybe someone remembers the name of the young (and very handsome) ensign who completed the unit, and also the name of the very attractive lady who was the sponsor of *Arizona*.

M. P. Evenson, RAdm.
6809 Bennett Valley Road
Santa Rosa, Calif. 95404

Ed's Note: This letter, from the Battleship Association's publication, was forwarded to Art Schoeni, former *NANews* editor. He sent a copy to RAdm. J. R. Tate, whose reply is printed below. Maybe some of our readers will be able to help.

Thanks for the note. I knew Chick Evenson well and liked him very much. I really enjoyed it when he broke out his guitar and sang. I also knew Bob Lockhart when I was in a VF squadron at North Island.

In 1930, I was ordered to Seattle to join *Arizona* as senior aviator. The ship was in the yard at Bremerton for overhaul and to have catapults installed. The C.O. told me to get off the ship and stay off and that as long as he was C.O. there would be no dirty, oily airplanes, catapults or aviators onboard. I returned very happily to *Sara* and the *Hi Hats* and reported to Raddy. (Art Radford, then a lieutenant commander and detail officer for aviators in Washington, D.C. He was my C.O. in the VF.)

Perhaps Archives would have the lady's name who was sponsor for *Arizona*.

The young ex-cadet was way after my time, but he was probably one of the many I put through Squad 5 at Pensacola. I was C.O. of advanced gunnery, fighter planes and night flying. Five or six aviation cadets went through.

J. R. Tate, RAdm.
P.O. Box 208
Orange Park, Fla. 32073

Models

I'm a collector of WW II U.S. Navy *Miniature Ship Sets* (small metal ships on blue wood boards in gray, wooden, hinged boxes) made under contract for the Navy during WW II to teach Navy pilots ship identification. Am also interested in the black scale model aircraft made for the services to teach aircraft identification.

I'm hoping to contact individuals who may still have some of these ship or aircraft models and are interested in selling them.

J. Maccubbin, LCdr., USNR(Ret.)
165 Blossom Hill Road, #307
San Jose, Calif. 95123

Help!

I am a professional writer on aviation and Naval Aviation and would like to contact naval pilots aboard aircraft carriers. My book will be dedicated to all F-4 naval pilots.

Any information from pilots and naval flight officers, aircrews, anecdotal stories, their flying experience with the F-4 *Phantom* and impressions of catapult launches and recovery would be welcome.

All materials — photos, slides, stories, etc. — would be appreciated, carefully handled and returned in good condition with an autographed copy of my book. All contributions will be honored.

Franz-Josef Giehl
5561 Altrich Krs. Wittlich
Kleingasse 1, West Germany

Request

Our museum would like to request donations of squadron patches from your readers. We are presenting a special display of new and obsolete patches. Any assistance your readers could render in helping with this exhibition would be greatly appreciated.

Our museum is owned and operated by the City of Newport News. We have over 100,000 visitors yearly.

W. C. Turpin, Director
The War Memorial Museum of Virginia
9285 Warwick Boulevard
Newport News, Va. 23607

Bow Gear

Thank you for the copy of *NANews* with the picture of the hooks which made contact with the fore and aft wires. If I recall, the fiddle bridges were put up by hand when I first went aboard *Langley* in 1924 and later were raised or lowered by mechanical means.

I also recall the "pies" which were used to support the cross-deck cables and when the tail hook caught a certain wire, the "pie" would fly and we had to duck in the nets off the side of the flight deck. I also remember that we lost some over the side.

I first went aboard *Langley* in Norfolk (1924) when the ship went to San Diego and out to Pearl on the 1925 cruise. I was transferred to NAS Pearl Harbor and back to *Langley* in 1928. I recall that we had flight operations while tied up to the dock at the bow and by using an anchor and a hawser on the after capstan, the stern would be pulled out so that the flight deck would be into the prevailing wind.

On page 2 of *NANews*, August 1976, there is an item regarding the bow gear. May I point out that the bow gear on *Lexington* was installed in 1937 at Bremerton and was used once off Maui when the maneuvers were called off. We had just launched several fighters and there were still a number of fighters on deck as well as the scouting, bomber and torpedo planes in readiness to launch.

Everything turned out O.K. and the fighters got aboard without further ado.

Donald J. Freeman, Lt., USN(Ret.)
397 Kings Highway
Moorestown, N.J. 08057

Reunions

All members of the original VMF-312 WW II squadron should reserve September 8 through 11 for a reunion at our old stomping grounds, MCAS Cherry Point. For further information contact MGen. Vic Armstrong, CG, MCAS Cherry Point, N.C. 28533.

The Sixth Annual National Stearman fly-in will be held at Galesburg, Ill., municipal airport on September 9-11, 1977. For further information write to Ted McCullough, 1215 Monroe St., Galesburg, Ill. 61401, phone: 309-342-2298.

21st ANNUAL TAILHOOK REUNION will be held September 16-18 at the Las Vegas Hilton in Las Vegas, Nev. Admiral James L. Holloway III is scheduled as the keynote speaker. For further information and reservations write The Tailhook Association, Box 730, Coronado, Calif. 92118 or call 714-437-1633. All applications must be received by August 31.

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SQUADRON INSIGNIA

The U.S. Navy Fighter Weapons School, Top Gun, is based at NAS Miramar. It provides "postgraduate" instruction in all aspects of fighter weapons systems, tactics and doctrines for fleet flyers. NFWS flies A-4Es, above, F-5Es, right, and T-38s. Later this year, the unit will receive two-seat F-5Fs to further enhance air-to-air combat training.

NAVAL AVIATION
NEWS