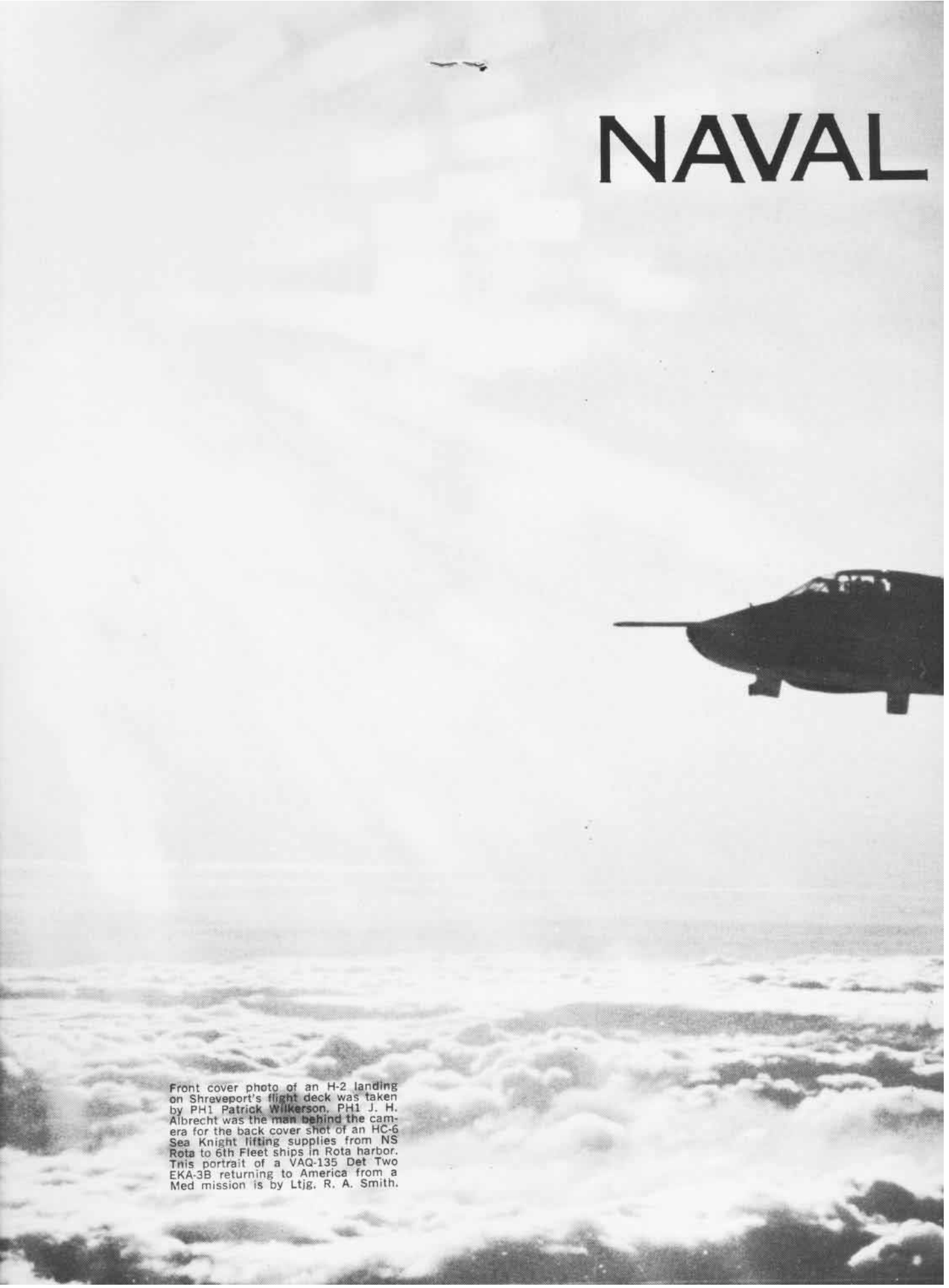
NAVAL AVIATION NEWS

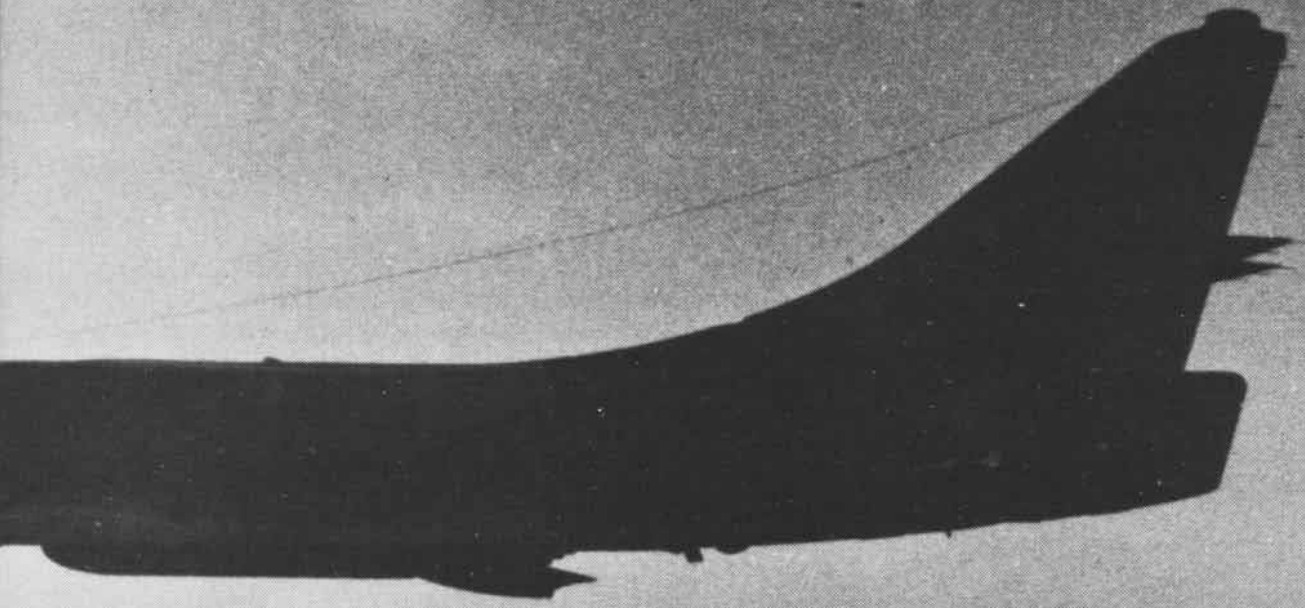
SEPTEMBER 1972

NAVAL



Front cover photo of an H-2 landing on Shreveport's flight deck was taken by PH1 Patrick Wilkerson. PH1 J. H. Albrecht was the man behind the camera for the back cover shot of an HC-6 Sea Knight lifting supplies from NS Rota to 6th Fleet ships in Rota harbor. This portrait of a VAQ-135 Det Two EKA-3B returning to America from a Med mission is by Ltjg. R. A. Smith.

AVIATION NEWS



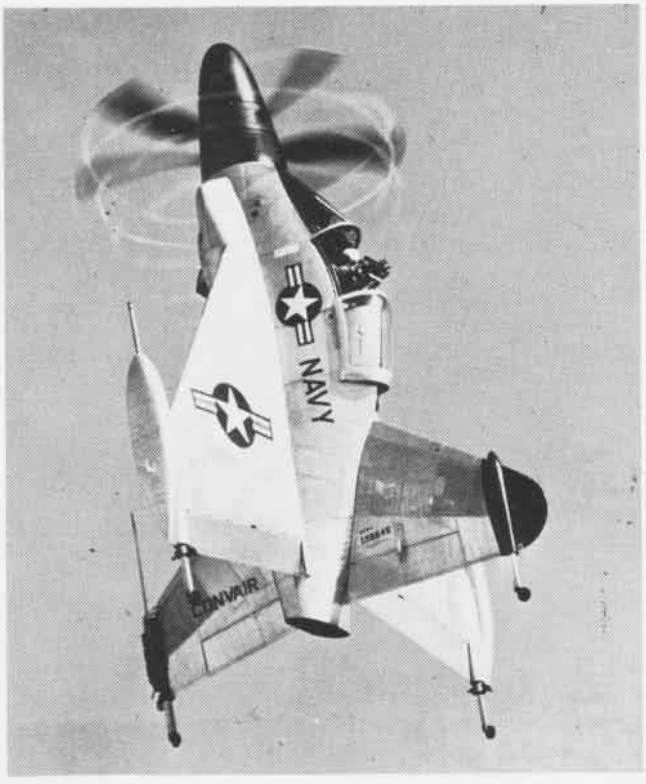
EDITOR'S CORNER

The aircraft we deal with between the covers of NANews *generally look familiar to you, the reader. They are frequently seen in other aviation publications or on your nearby flight line or flight deck, as the case may be. But Naval Aviation from time to time does find itself involved with the strange and unusual in the way of flying machines and it is appropriate that we let our readers in on these exotic types as they come to our attention.*

Last month we featured an article dealing with remotely piloted vehicles. In past years, we've discussed such diverse types as inflatable airplanes and parafoils. This month we bring you the X-28A Air Skimmer *which recently completed flight evaluation at the Naval Air Development Center, Warminster, Pa. Nicknamed* Osprey I, *the plane is an exceedingly small, single place seaplane designed to be constructed by the amateur plane builder at home. The X-28A cruises between 65 and 100 miles per hour and normally takes off in 300 feet.*

The Navy's interest in this aircraft is concerned with finding a suitable seaplane for civil police patrol duties in Southeast Asia. The plane has proved to have excellent handling characteristics on waterways as narrow as 25 feet. Due to its small size and light weight (under 1,000 pounds) the Osprey I *provided a good test aircraft for studying basic requirements.*

To continue in the same vein, we display here a few of the more unique variety of aircraft which have interested the Navy in past years. We think you will agree that their designs cover a wide spectrum of experimental investigation.



NAVAL AVIATION NEWS

1911 1972

Houser Relieves Weisner As as DCNO (Air Warfare)

WASHINGTON, D.C.—Vice Admiral William D. Houser assumed duties as Deputy Chief of Naval Operations (Air Warfare) August 5, relieving Vice Admiral Maurice F. Weisner.

Admiral Weisner has donned his fourth star and will relieve Admiral Ralph W. Cousins as Vice Chief of Naval Operations. Adm. Cousins' new assignment has not been announced.

VAdm. Houser's latest assignment was as Commander, Carrier Division Two, and Commander Task Force Sixty while deployed to the Mediterranean. His first assignment as a Naval Aviator was as maintenance officer of VF-1L aboard USS *Saipan* (CVL-48). He later became X.O. of that squadron, and has commanded VF-44, VF-124, USS *Mauna Loa* (AE-8) and USS *Constellation* (CVA-64).

Shore tours for the admiral have included Deputy Chief of the Air Objectives Branch, OpNav; Air Branch, Office of Naval Intelligence; Atomic Energy and Guided Missile Branch, Joint Chiefs of Staff; Military Assistant to the Deputy Secretary of Defense; Chief, Strategic Plans and Policy Division, Joint Chiefs of Staff; and Director, Aviation Plans and Requirements Division, DCNO(Air).

VAdm. Houser is entitled to wear the Legion of Merit with three Gold Stars, Bronze Star Medal with Combat V, Air Medal with Gold Star, and Navy Commendation Medal with Gold Star and Combat V.

Admiral Maurice F. Weisner

Vice Admiral William D. Houser

Changes are Made at Corpus Christi

CORPUS CHRISTI, Texas — In a dual ceremony at the naval air station on July 1, the Naval Air Training Command was relocated to Corpus Christi and the Naval Air Advanced Training Command was disestablished.

Rear Admiral James Ferris, CNATra, officially broke his two-star flag at NAS Corpus Christi to symbolize the relocation of his command headquarters from NAS Pensacola, Fla.; and Captain Robert E. Taylor, CNAVanTra, disestablished his command.

Guest speaker for the ceremony was Vice Admiral Malcolm W. Cagle, Chief of Naval Training, who played a primary role in the "new look" in naval training. He was head of the study group which took a hard look at Navy training and its management.

As a result, the management of naval training has been consolidated into four main subcommands, with the Naval Air Training Command restructured to streamline the training of all Naval Aviators.

Jet Fuel Additive Tested at Lakehurst

Deadloaded A-3 strikes the barriers erected for jet fuel additive tests at NAS Lakehurst, N.J.

LAKEHURST, N.J. — The Federal Aviation Agency is developing a jet fuel additive that will minimize the explosive fire hazard during an aircraft crash and give the passengers a greater chance for survival.

The Naval Air Test Facility was chosen as the test location for realistic demonstrations of the anticipated advantages of this modified jet fuel. The tests are designed to duplicate a survivable crash (one in which the fuselage remains intact) although the wing fuel tanks are deliberately ruptured. The test aircraft will be the RB-66, the Air Force version of Navy's A-3 *Skywarrior*.

In order to achieve the desired crash situation, certain preparations were made at NATF test site track #1, one of the five high speed tracks normally used to test shipboard arresting devices. Barriers were erected to break off the main landing gear and the nose wheel. One-foot-thick utility poles were positioned to rupture the wing fuel tanks. A six-foot hill was constructed 80 feet beyond the point where the wing and gear would impact.

During the first test, an A-3 airframe was used with colored water in various fuel tanks to represent wreckage and fuel distribution prior to any tests using flammables. Propelled down the track by a four-engine jet car, the deadloaded aircraft struck the barriers at approximately 137 miles per hour.

A second exploratory crash is scheduled, again using an A-3 airframe for final site certification prior to crash tests of the RB-66's with modified and unmodified jet fuels.

Interest in the fuel additive is widespread among both civilian and military aviation communities. Added to the fuels as the aircraft is being refueled is a gelling substance which increases fuel viscosity to the consistency of maple syrup. It remains so until broken down by the combined heating and pumping actions prior to reaching the engines' fuel nozzles. Until then, however, it cannot be easily atomized by tank rupture or line separation.

The series of tests at NATF are expected to show the nearly complete absence of a fuel explosion.

Record Safety Year

WASHINGTON, D. C. — Naval Aviation posted its best safety record during the last fiscal year. Preliminary figures for FY 72 show that Navy fliers had an accident rate of .89 accidents per 10,000 flight hours. This is the first time the accident rate has dropped below 1.00 per 10,000 flight hours. The safety record has been getting progressively better over the last years, from a FY 1950 rate of 5.40. Contributing to the record were 97 commands and units of the Atlantic Fleet who posted accident-free records, including squadrons, shore stations, carriers, LPH's, and a naval district.

F-4N Maiden Flight

SAN DIEGO, Calif. — The F-4N, Navy's latest version of the F-4 *Phantom*, took to the sky on its maiden flight in June. The prototype F-4N is a product of the F-4B service life extension program known as Project Bee-Line. The newly designated F-4N's are modified and updated F-4B's and promise to be a maintenance officer's dream.

Created to overcome the deficit of fighter aircraft between the planned phase-out of the F-4B and fleet delivery of the F-14, Bee-Line was established in January 1971 to extend the service life of 178 F-4B's for an additional six years. The Naval Air Rework Facility, North Island was assigned the role of prime contractor and completed the engineering design, production tooling and prototype in just 17 months.

Every wire was removed and replaced with a redesigned electrical wiring system, using the new Poly-X wire installed in the F-14 and S-3A. Harnesses are compacted into bundles inside a dacron sheathing and each wire is color coded, corresponding to the last digit of the wire segment

F-4N makes its first flight on the West Coast.

number. This color coding will reduce the maintenance man's wire sort problem. But most important, every F-4N will be produced with identical wiring and only one set of wiring data will be in the new F-4N publications.

The second part of the program is the update of the entire aircraft to a single configuration roughly equivalent

to the latest operational F-4B in the fleet today, plus the addition of AIMS, data link, 30 KVA generator, air-to-air IFF, VTAS, SEAM, dogfight computer and pilot lock-on mode.

The third portion of the hardware modification is a structured "beef up" to extend the fatigue life of the airplane. Based on the 8,000-hour full scale model fatigue tests conducted by McDonnell Douglas and the accumulated service experience from depot level maintenance, over 50 structural improvements will be made to wing and airframe.

The line production of the F-4N began last July with delivery of the first production run aircraft scheduled for January. Projected production rate is five aircraft per month until the last aircraft is delivered in December 1975.

Three Naval Aviators Win Navy Cross

SAN DIEGO, Calif. — Three Naval Aviators were recently presented the Navy's highest award for valor. Commander Lowell F. Eggert and Lieutenants Matthew J. Connelly III and Thomas J. Blonski earned the Navy Cross for their extraordinary heroism on May 10 during a coordinated carrier-based air strike against a rail yard in North Vietnam.

Cdr. Eggert, CAW-9, embarked aboard *Constellation*, planned and directed the attack. Flying an A-7 *Corsair II* with bomber pilots of VA-146, he personally led the bombing runs which destroyed the heavily defended railway center. The attack group was jumped by 16 enemy fighters as it left the target area.

Flying combat air patrol for the wing, Lt. Connelly, as pilot, and Blonski, as radar intercept officer, in a VF-96 *Phantom*, shot down two of the five MiG's destroyed and helped drive off the remaining enemy aircraft.

During the ceremony, Cdr. Eggert was presented two other decorations: the Air Medal for destroying enemy antiaircraft positions which were firing on a CVW-9 photo recon aircraft during a mission over North Vietnam in December; and the Legion of Merit, for his outstanding service as CAW-9 from January 29, 1971, to April 30, 1972.

Admiral Bernard A. Clarey, CinCPacFlt, presented the awards.

Air Controller Credited with 12 MiG's

SAN DIEGO, Calif. — USS *Chicago* (CG-11) has returned to her home port but Chief Radarman Larry H. Nowell is still considered the hottest air controller in the Gulf of Tonkin, at least as far as *Chicago*, her commanding officer and many Navy and Air Force pilots flying over North Vietnam are concerned.

Combat air patrol pilots over North Vietnam have brought down a dozen MiG's while under the chief's direct control, proving the chief's superior skill. That in itself is enough to make a success story, but Chief Nowell admits his greatest pride is in his emergency rescue efforts, such as getting an aircraft which was low on fuel to a tanker.

Chief Nowell's job requires him to know what each plane is doing, how to protect it and what to do to save it and its crew if anything goes wrong. His success as an air intercept controller lies in a combination of knowledge, experience, imagination and coolness. As control supervisor aboard *Chicago*, he must have a vast amount of information about the enemy's and our aircraft and know how to use it effectively.

It is a team effort in CIC. Information comes from radars, computers, radio nets, briefings and the quick comments of pilots. Putting all the pieces together, Chief Nowell forms a picture of the situation, whether it is a MiG attack, a plane needing emergency fuel or one of the countless other incidents that occur in a combat situation.

During *Chicago's* recent deployment in the Gulf, Chief Nowell's professional reputation spread and individual pilots often called him by name when reporting to the cruiser for control. They knew he was someone to rely on in a tight situation and recognized his ability.

A typical example of Chief Nowell in action was his first MiG kill on March 6, 1972. Two fighter aircraft from *Coral Sea* under *Chicago* control were proceeding to station to cover a photo-reconnaissance mission when the chief spotted the faint radar indication of an enemy aircraft making a run for an airfield near them. He

Chief Radarman Nowell at his battle station.

promptly took control of the F-4's, received permission to fire and vectored the fighters on the contact. The pilots spotted a MiG and shot it down.

On April 16, the chief assisted in three more MiG kills, then racked up two more on May 6 and one on the 8th.

May 10 was a red letter day — four MiG's credited to *Chicago's* air controllers — three to Chief Nowell. Two more were added on May 23.

The ship has rung up a total of 15 MiG's downed since March. In addition to the chief's 12, two other controllers have brought down one each, while the ship's *Talos* missile system downed one on May 9 during the mining of Haiphong.

Quonset Point Unit Awarded MUC for Antarctic Service

QUONSET POINT, R.I. — The Navy's aerial support flying force for U.S. operations in Antarctica has been awarded the Meritorious Unit Commendation.

The commendation was earned by Antarctic Development Squadron Six for outstanding performance of duty in the Antarctic from August 1969 to March 1971.

The citation praised the squadron's 400 officers and enlisted men who displayed outstanding professionalism and resourcefulness while making a major contribution to the success of the U.S. scientific efforts in Antarctica.

During the period of the citation, VXE-6 flew over 40 tons of supplies and hundreds of passengers, including scientists from 17 nations, to various parts of the Antarctic and completed several rescue flights.

GRAMPAW PETTIBONE

Minus the Rollers

Two lieutenant commanders were scheduled to complete a proficiency training flight in a US-2A. Although both were experienced aviators and fully qualified in accordance with NATOPS, they had minimum experience in this aircraft.

Following the filing of their IFR flight plan, the pilots preflighted, manned their aircraft and departed home field at 0830 local. They proceeded to a nearby NAS to practice approaches and landings. Since the traffic pattern was fairly active and they were waved off three times, they concluded their activities at the field and proceeded to a civilian airport.

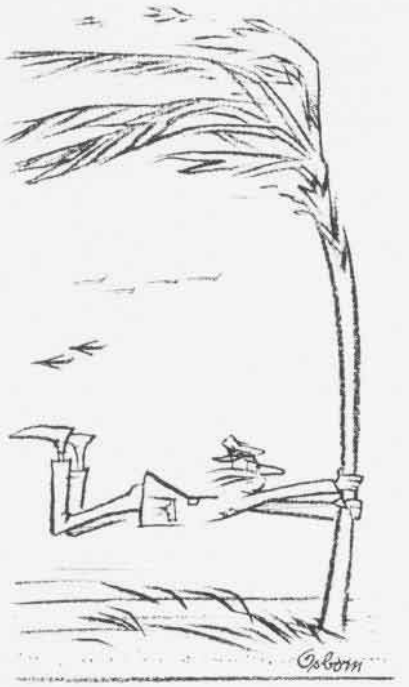
When they arrived, they conducted a touch-and-go landing, raised the wheels and turned downwind for another approach and landing. The pilot at the controls did not call for the landing checklist. He continued his approach and recalls checking the cockpit indicator systems, and believes he saw them indicating "up," but the import did not register. At the completion of this approach, a landing flare was begun with the landing gear retracted. The starboard propeller made initial contact with the runway approximately 1,110 feet from the approach and with the aircraft sliding 3,000 feet from the point of initial contact. The surprised, uninjured pilots secured the cockpit switches and exited the aircraft. The *Tracker* sustained substantial damage.

Grampaw Pettibone says:

Sufferin' catfish! Another one where the drivers failed to put their "rollers" down before landing. How do you plead, lads, guilty or not guilty?

Well, I'll enter a plea for you—guilty! Guilty of violating NATOPS!

The pilot guilty of not properly utilizing his copilot! Guilty of complacency! Guilty of not understanding what the gear indicators were trying to tell him! Same goes for the copilot—who sat there like a bump on a log acting as ballast.



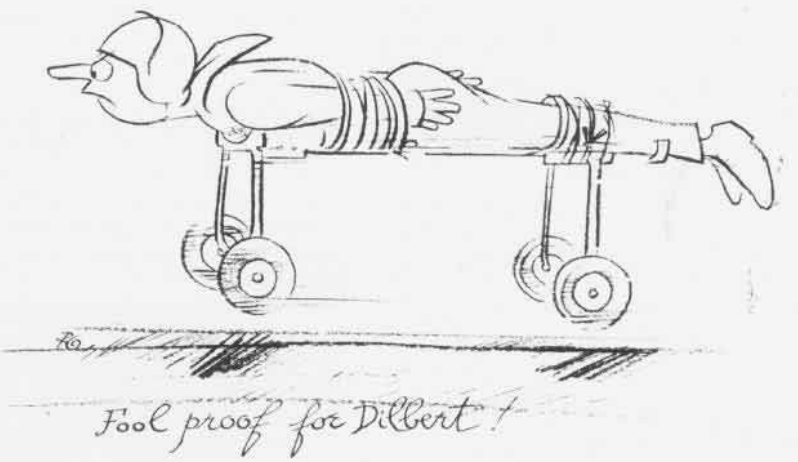
Would you believe that we had six, yes, that's right, six, wheels-up landings this past fiscal year resulting in major damage? What's that? It can't happen to me? Well, it *can't* if you follow the book. Nuff said.

Zig, Zag, Dodge, Turn and Crunch

Two student pilots were scheduled for a VFR night solo bounce flight in a TS-2A *Tracker*. They were briefed on their flight by the runway duty officer (RDO). The preflight, taxi run-up and takeoff evolutions for the flight proceeded normally.

Following six touch-and-go landings and one full stop, the copilot requested and received clearance back to an area where the two pilots would exchange seats as briefed. Following the seat exchange, run-up and pre-taxi checks were completed without incident. The RDO was now contacted for takeoff.

The students were advised to taxi and hold short behind two other aircraft awaiting takeoff. While applying his brakes, the pilot noted that his port brake was not pumping up properly and directed his copilot to try his brakes. The copilot indicated that the port brake was malfunctioning; the pilot now applied both brakes hard, and the *Tracker* turned 90 degrees to starboard and stopped. The parking



ILLUSTRATED BY Osborn

brake was set and the RDO was advised of their difficulty. The students now noticed a hydraulic leak in the vicinity of the port wheel. They advised the RDO and requested a tow.

As a result of a weak radio and traffic on the RDO's other radio, the RDO thought the aircraft with the brake problem was another aircraft in the line area. He instructed the aircraft to taxi clear of the taxiway if control was possible and to shut down if it was not. The students understood this to be instructions to taxi back to the line area and shut down. The pilot started back to the line area, using asymmetrical power and starboard brake to control the aircraft and relying on the parking brake to stop.

Upon entering the line area, the students were confronted by two aircraft taxiing toward them. One student applied starboard brake to turn clear and attempted to set the parking brake—without success. Since the aircraft was headed directly toward the operations hangar, he applied power to the starboard engine and turned clear of the hangar, narrowly missing a loading ramp.

Now the *Tracker* was headed toward another solo aircraft parked on the line with the engines turning. Our pilot again added power to the starboard engine and avoided this aircraft.

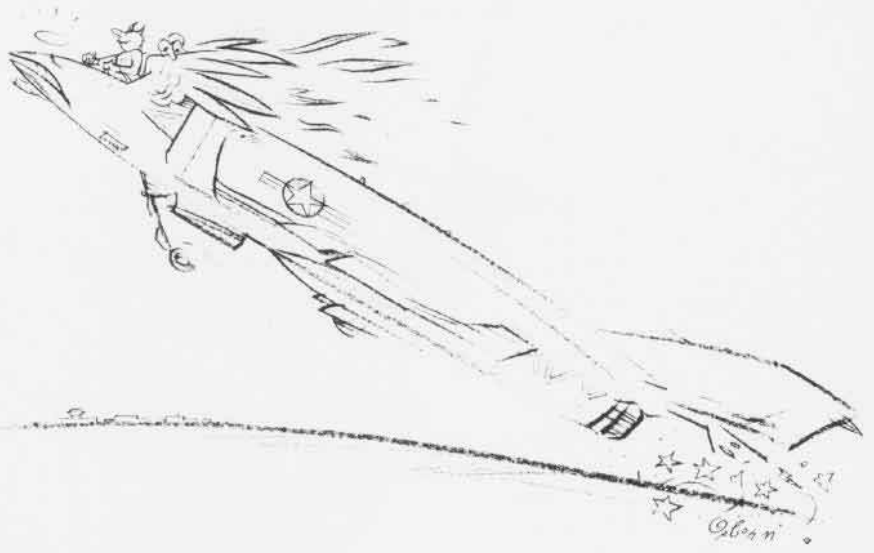
When contact with another aircraft parked on the line was unavoidable, the port engine was secured with the mixture. The port prop of their aircraft then contacted the port wing tip of another TS-2A and stopped. The starboard engine, mags, battery, and fuel were secured and both students exited the aircraft without injury.

Grampaw Pettibone says:

Great balls of fire! I can't imagine an experienced Naval Aviator (the RDO) advisin' a couple of students to continue taxiing after they reported a brake *malfunction—regardless of where they are on the airfield.* That just ain't sound! He should'a told them to sit still.

For a while there, the students looked like they were going to handle this emergency like a couple of pros but, once advised to taxi, it was a whole new ball game—with two strikes on the fellas in the aircraft. These two lads had one heck of a ride in—dodging three aircraft, a hangar and a loading ramp until their evasive talent ran out!

I understand the procedures for the RDO have been revised—a little late.



Watch My 'Hot' Takeoff

Two first lieutenants arrived in the ready room to brief for their local two-hour radar navigation flight in an F-4B *Phantom*. Following the brief, the pilot and his radar surveillance officer (RSO) left the ready room with adequate time for their prestart checks. Preflight, start, post-start checks and taxi were conducted without incident. Upon receiving takeoff clearance, our Marine Aviator aligned his aircraft on the runway, which was over 13,000 feet long with an elevation in excess of 3,900 feet.

During the takeoff roll, the tower made two transmissions to our *Phantom*, advising that another F-4 was at ten miles to land. The takeoff continued and the aircraft was seen in an unusually nose-high attitude at the 2,100-foot position on the runway. This attitude was maintained, then increased to a point where many witnesses were sure the tail would scrape the runway. The *Phantom* became airborne 3,000 feet down the runway (takeoff roll was later calculated at 4,000 feet) in an excessive nose-high attitude and attained an altitude of approximately 30 feet. Observers saw the *Phantom* fall off on the right wing into a right bank of 60 to 70 degrees. As the aircraft banked, it lost altitude, passed to the right side of the runway with the right wing hitting the ground, and continued approximately 200 feet with the right wing in the dirt when the nose contacted the ground and the aircraft burst into flames. Neither crew member survived.

Grampaw Pettibone says:

Great land of Goshen! Well, there it is again, gents! What have we got? A destroyed flyin' machine in which the accident board, after a thorough investigation, could not find any discrepancy which could have caused this accident, a pilot who was known by his squadron mates to have considered himself a "hot" pilot and, further, a pilot who had been cautioned recently for displaying poor headwork by deviating from NATOPS!

Lads, if you want to put on a "show"—join a theatrical group. Flying today's modern aircraft is for knowledgeable, mature and aggressive fellas "who have grown up"! Notice I said "aggressive," not foolhardy.

'This accident would not have happened if I had overslept as I usually do.'

'GATOR AVIATION

By Capt. Pehr H. Pehrsson, C.O., LPD-12, and Ltjg. James A. Nesius, USNR

Exploitation of the air has been one of the most rapid areas of development in our Navy's history. With the addition of the helicopter, tremendous flexibility has been added to amphibious operations.

Aviators with the amphibious forces, be they Marine pilots lifting troops in CH-53's to a hostile beach or Navy H-2D commanders transporting the mail from San Juan, have had a tremendous impact on every aspect of the **'Gator Navy.** The ability to transfer by helicopter emergency repair parts from one ship to another in minimum time tremendously upgrades the readiness of a deployed amphibious force, and few chaplains are complaining about the lack of a Sunday dip while being "highlined" in the *Holy Helo.*

Once classed as non-aviation ships, amphibious vessels are now denoted as aviation facility ships.

Amphibious aviation facility ships range in size from 4,000-ton tank landing ships (LST's) to 15,000-ton amphibious transport docks (LPD's), with crews of 160 and 450 men, respectively — a far cry from a 75,000-ton carrier with 5,000 men aboard. Older LST's offer little more than a place to set down. The LPD has a hangar, backup maintenance-support, tactical air navigation, electric start and refuel capabilities, and a flight deck certified for day and night operations for the largest troop-carrying helo.

Personnel available to assist with aviation functions vary from a handful of cross-trained deck crew members to a 30-man ship's company of first term airmen headed by a Naval Aviator lieutenant commander. Designated aviation personnel are ordinarily assigned only to the larger aviation facility ships.

Typical of the aviation facility ship is the Atlantic Fleet USS *Shreveport* (LPD-12). This 569-foot LPD was built to deliver half a Marine battalion landing team and all its

An underwater demolition team member drops into the water from H-2 Seasprite of HC-4. Deployment of UDT swimmers is one of many jobs made faster and safer by using helos.

equipment into a hostile amphibious objective area. The ship has a flight deck which can be made 240 feet long by collapsing to minimum dimensions a 60-foot telescoping hangar. Marine-piloted, troop-carrying helicopters are used in conjunction with amphibious assault boats swimming out of the ship's floodable well deck to land the landing force.

Shreveport's air department is headed by LCdr. Richard Moe. Working for him are 28 aviation boatswain's mates and nonrated personnel. These men not only perform the normal shipboard duties of their rate, but are also responsible for the maintenance of their own equipment and large areas of topside space.

The air department's equipment includes pumps and auxiliary equipment for pumping 350,000 gallons of JP-5 from the ship's tanks into embarked helicopters, flight deck tie downs, aviation clothing, tractors and a Tilly with a 30,000-pound-capacity fork lift, and a two-position primary flight control with complete communications and display facilities. Embarked aviation detachments are under the operational command of the ship's air officer, but perform their own maintenance.

Commanding officers of LPD's usually alternate between surface and aviation officers. When the C.O. is a surface officer, frequently with little experience in operating aircraft from a shipboard flight deck, the air boss becomes an essential advisor to the skipper, in addition to filling his ordinary department duties.

Few aviation facility ships can afford a full time air officer, so he is expected to qualify as an underway officer of the deck and command duty officer after he has completed indoctrination watches in the combat information center (CIC), the engine rooms and in communications, plus any collateral duties he might be assigned.

From time to time, the air officer may also be consulted by the amphibious squadron commander, although with new detailing policies, Naval Aviators are now being ordered as squadron commanders. The first such aviator to be so ordered is the incumbent commander of Amphibious Squadron Two, Captain F. F. Palmer, who makes *Shreveport* his flagship.

The amount of time that aviation facility ships actually have helicopters embarked varies widely from ship to ship. *Shreveport,* however, has had detachments attached to the ship for seven of the last ten months in which she was not in the shipyard. Most detachments have been HH-2D's, averaging about 40 flight hours per month while embarked.

Operating aircraft from an aviation facility ship deck poses problems unique to smaller ships. Rather than being maintained exclusively for the use of aircraft, the flight deck is used throughout the day for different purposes. With almost 900 Marines and their equipment embarked, the only available free space on board is the flight deck — so it becomes a drill field and recreational area. It is also used to stow, and work, on ship's boats, as a staging area for airlifted cargo and as a picnic ground for fair weather cookouts for the crew.

This magnifies FOD danger and requires the continual attention of all hands.

The LSE's skill is critical to safe flight operations because of the amplified pitch and roll on a small deck. This is especially true when large helicopters are operating simultaneously on the flight deck at night with only a few feet of blade separation. Similarly, the leading fuels aviation boatswain's mate is charged with delivering fuel equal in quality to that pumped on the largest CVA. This requires meticulous attention to equipment maintenance and standard procedures.

While the tempo of operations on an aviation facility flight deck in no way compares to that on a carrier, the LPD operates two helo spots with considerable speed and efficiency. Using six aircraft in recent amphibious qualifications, *Shreveport* landed and launched 184 H-46's and H-53's in 14 hours of day and night operations. Average on-deck time, including hot refueling, was four minutes. Under such conditions, the chock and chain men are as active as on any ship in the Navy. Flight deck safety requires real teamwork.

Another squadron aviation facility ship, USS *Portland* (LSD-37), provides an excellent example of a ship not so elaborately configured for air operations. This modern LSD is 567 feet long, only two feet shorter than *Shreveport,* and also has a well deck from which boats are operated. On *Portland,* however, this well deck extends much further forward into the ship, making her primarily a cargo carrier.

Portland's only qualified aviator is her commanding officer, Captain John V. Josephson. The ship has no air department and, consequently, manning the helicopter detail is an exacting collateral duty of a closely knit, well-drilled team of deck and engineering department personnel. When flight quarters is sent ringing across the decks via the ship's announcing system, brightly colored helmets and jerseys are donned, ladder handrails and stanchions removed and chocks and chains assembled on

station. Fire hoses are unreeled and charged, foam stations manned and jettison rig checked. The rescue boat is lowered to the rail and manned with a diverse group of signalmen, technicians and stretcher-bearing corpsmen. These and other preparations complete, "green deck" is signaled to the incoming helicopter.

With her large, single-spot flight deck measuring 77 by 84 feet, *Portland* is equipped to recover and launch Navy and Marine helicopters up to and including the CH-53. Primary flight control functions are handled by CIC with coordination between the flight deck and CIC taking place over sound-powered circuits. The ship has a UHF beacon for helicopter navigation and all the necessary gear for providing refuel and electrical start services to embarked aircraft.

Smaller 'Gator aviation facility ships frequently run into special manning problems because they lack an air department. When steaming into an amphibious assault anchorage, special sea and anchor detail, condition 1A (a modified condition specifically tailored to meet the needs of amphibious warfare) and, when vertical envelopment is to be part of the operation, flight quarters must all be manned. By carefully gleaning the watch bill, it can be done — but the first lieutenant will gnash his teeth over how few people he has left.

Despite the fact that each member of *Portland's* aircrew performs these in addition to all his regular duties, none seem to mind. Rather, each is proud of the job he does and all enjoy the opportunity to work with aircraft.

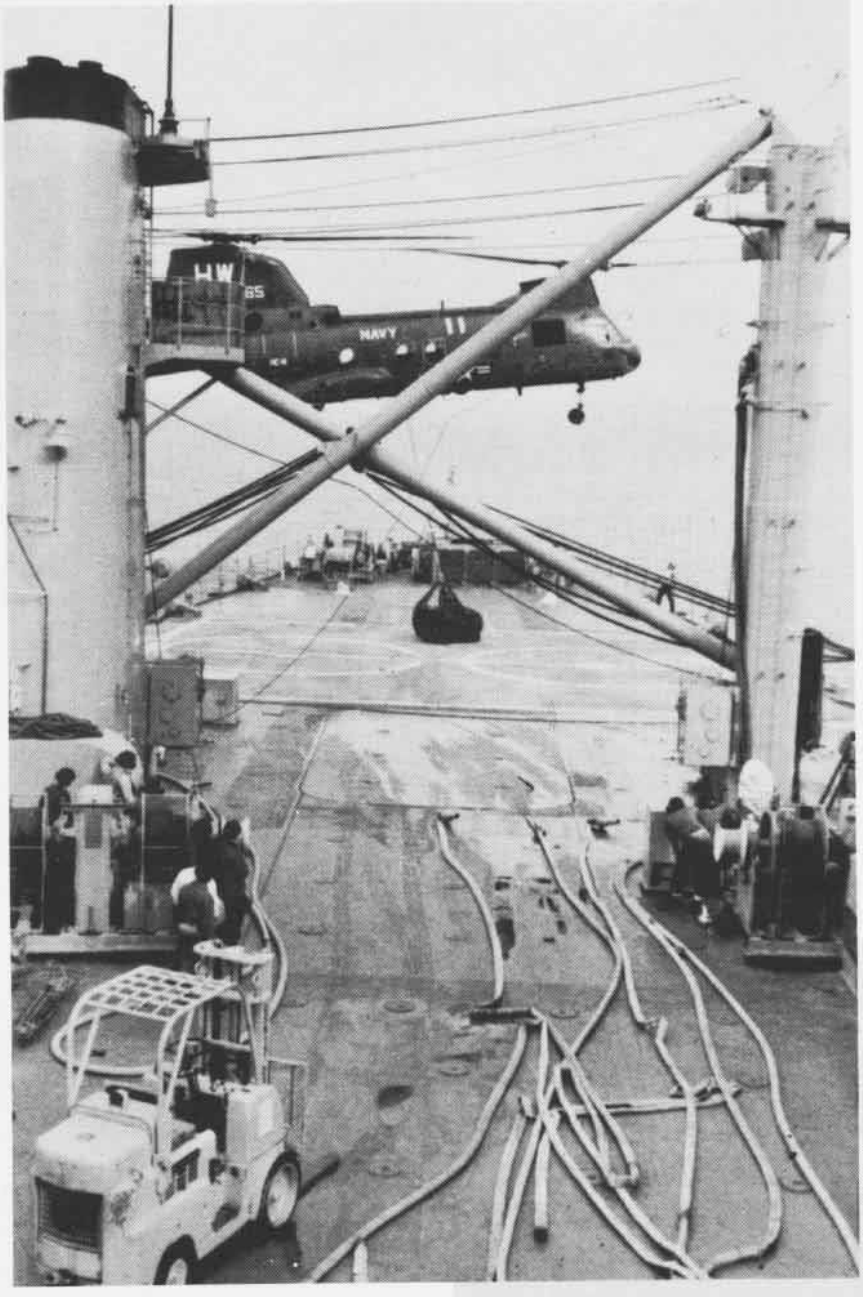
Long gone are the days when the presence of a small military aircraft far at sea signaled the presence of a carrier. The future is golden for aviation facility ships. Not only is the capability to replenish vertically being expanded each year, but helicopters flying from aviation facility ships are being used operationally in antisubmarine and mine warfare, and are a key element in the sea control ship concept. Compatability tests were conducted last year with the *Harrier* operating from an LPD. The possibilities have only been touched. Perhaps in the near future, amphibious squadrons will carry their own close air support aircraft in addition to helos.

As long as helicopters remain an essential tool of Naval and Marine Aviation, the amphibious "mini-carrier" is going to use them.

Maintenanceman works on a helo from HC-4, opposite top. A mechanized landing craft drives into Shreveport's flooded well, far left. A fuel sample is taken during hot refueling, left. A Marine drives his jeep out of a CH-53 onto Shreveport's flight deck, top. USS Portland (LSD-37) with her single-spot flight deck is at right.

Photos by PH1 Patrick Wilkerson and PH3 John Pray

SN Ken Patterson



Flight

Flight quarters, flight quarters. All hands man your flight quarters!" Briefings by the landing signal officer and landing signal enlisted were simple and to the point.

"Gentlemen, this morning's operations will consist of everything we've practiced thus far. We'll be chocking and chaining the helo, refueling it, and running crash, fire, casualty handling and vertical replenishment drills.

"Nothing will be new. Just remember what you've learned and it will go smoothly. If there are no questions, individual team leaders will run over the procedures once more with their men after the FOD (foreign object damage) walkdown. That's all, and good luck."

Fifteen minutes later, with all preparations completed, the flight deck crew noticed the helicopters approaching. Operations were about to begin. One by one, on signal, the helos came

There is not very much room to land a helo on the stern of the tank landing ship, USS Fairfax County, right, but the pilot of the H-46 Sea Knight, above, makes a cargo delivery and then lands safely.

Ops Amphib Style

By Ens. Thomas R. Snook

in and the drills were run.

Emphasis was on the crew members' jobs — how to perform them, how to improve them, both as a unit and individually. Without a signal, team members began to work among themselves while the operations continued. The men were coming up with suggestions on how they could improve. The mood was one of determination. With 30 minutes left to go in the exercise, the observer announced, "We have enough time to run everything once more. This will be for your grade."

The LSO nodded and signaled to his LSE who passed the word along. No other words were spoken; there was no visible show of emotion. The change had already occurred. With quiet determination, the crew was ready to do its job.

Suddenly, the headphones in fly control crackled. "Fairfax, this is Dough One, how do you read? Over." The metallic voice was loud and clear. The LSO rogered and heard, "Dough One inbound, left seat landing." Again a roger.

As the final drills began, the determination of the flight deck crew became apparent to all on the ship. The operations were smooth where, at the beginning of training, they had been jerky. Handling was done with a fluid motion that almost looked too easy.

During the fire and crash drill, the observer added a reflash to the problem. But the crew was ready and handled it with studied skill, prompting the observer to comment, "With a crash party like this one, you'll never have to worry about a helo fire aboard this ship."

The refueling crewmen performed the last operation like a precision team. After they finished and were stowing their equipment, the LSO gave a thumbs-up for their good work. The team leader grinned and shouted back over the din of the departing helo, "We're getting good."

And the final exercise was over.

PH3 Lawson

Personnel in the naval aviation community have lived scenes such as this many times. But there was special significance to the events aboard this particular ship that spring morning. This was the last day of helicopter operations during the initial amphibious training of the tank landing ship USS *Fairfax County* (LST-1193), homeported in Little Creek, Va. This was the final exam.

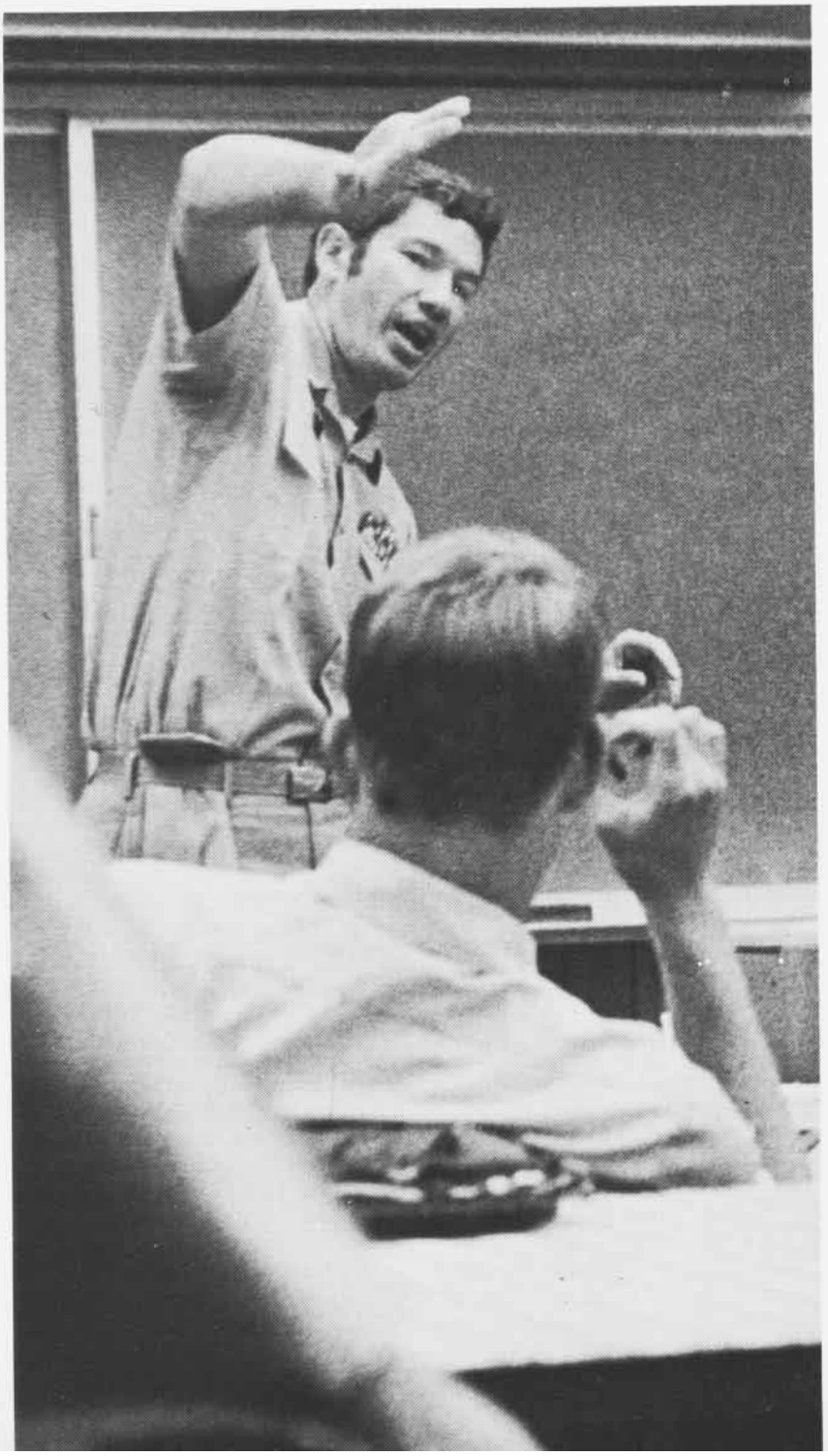
The crew had come a long way since the ship was commissioned last October. The awe of men who had never seen a helicopter up close, much less land on an amphibious ship, had begun to diminish. Proficiency was evolving in place of the initial flush of uncertainty and with it a new respect for this important arm of naval operations.

Even for the men who had worked with the helos previously, the day had a special significance. They remembered when they first worked with flight crews and were given the opportunity to graduate from the status of amateur to that of professional. For them, the excitement was just as real, just as all-encompassing as it was for the 40 men on the flight deck that morning who were working around helicopters for only the third time in their Navy careers.

Proficiency had been established during the more than 90 landings the flight crew had been involved in during the two days of operations. They had been indoctrinated in the proper procedures and had shown they were ready and willing to assume the new burden of training themselves.

The men of this amphibious ship had joined the aviation community.

MiG Killers All



By Lt. Joseph H. Weisberger

Photos by PH1 C. J. Markowski

Soon after Lt. Randy Cunningham and his F-4 *Phantom* radar intercept officer, Lt. Bill Driscoll, became the first air combat aces of the Vietnam War, a columnist for a Southern California newspaper suggested that they were unworthy of the title.

The VF-96 airmen, said the writer, were mere "button pushers," technicians who "happened to be at the right place at the right time" to activate a complex of electronic gadgetry and down an enemy "they never saw."

The reaction among Navy pilots and others similarly well-informed ranged from the amused to the profane, but the most telling rebuttal to the columnist's ill-informed thesis lies in the record of combat successes rolled up by the "button pushers."

A key role in the growing number of MiG's downed by Navy fighter crews belongs to *Top Gun*, the Navy Fighter Weapons School, NAS Miramar, Calif. It serves both Pacific and Atlantic fleet fighter squadrons.

Due to the requirement for visual identification and the nature of the encounters, Vietnam air battles have, almost without exception, been swirling, low-altitude affairs conducted visually in a gut-wrenching series of high G maneuvers.

To develop aircrews with maximum proficiency in this demanding arena, *Top Gun* has, for more than three years, been producing graduates highly knowledgeable in the theory and practice of air-to-air combat. Each graduate has returned to his squadron, passing his expertise on to fellow pilots via internal training programs based upon the *Top Gun* format.

Lt. Randy Cunningham describes dogfight to Top Gun class, left. At right is Cdr. Roger Box, C.O. of the Fighter Weapons School. On following pages, camouflaged A-4's with F-4's ready for takeoff for adversary flight.

Top Gun came into being in 1968 following a Naval Air Systems Command study which, in part, called for a higher level of aircrew weapons and tactics training.

Early in the Vietnam air war, it became evident that we needed to shift all-weather fighter emphasis from heavy reliance upon radar to more eyeball-oriented tactics. Training patterned toward a high-altitude bomber threat was unsuited to conditions over Vietnam. RIO's were discovering that keeping radar antennas trained on a flashing MiG in a low-altitude, close-in encounter was akin to trying to track a buzzing fly around a dark room with a flashlight.

Such an environment needs a highly skilled human to solve the fire-control problem by bringing the nose of his aircraft to bear on his opponent.

The Fighter Weapons School was given the mission of programming this "165-pound computer." Graduating its first class in April 1969, *Top Gun* began making its mark in the Vietnam air war within a year. In March 1970, Lt. Jerry Beaulier of VF-142 and his RIO, Lt. Steve Barkley, scored the first MiG kill by a *Top Gun* graduate.

The school was created for one basic purpose — to insure that Navy fighter pilots are better than their foes. To this end, commanding officers of all fleet fighter squadrons were invited to nominate four of their most qualified and motivated pilots and RIO's to attend the one-month *Top Gun* course which includes 75 hours of classroom work and 45 hours of air combat maneuvering (ACM).

By mid-1972, *Top Gun* had sent more than 200 graduates from 25 classes back to every Pacific fighter squadron and many in the Atlantic.

Originally a department of the West Coast F-4 replacement training squadron, VF-121 at Miramar, *Top Gun* became a separate entity with an OinC on January 1, 1972, under the aegis of Captain A. B. "Chick" Smith, then Commander, Fleet Air Miramar. The unit was commissioned July 21 under the command of Commander Roger Box, a veteran of two cruises and 150 combat missions over Vietnam. He presides over an 11-man instructor staff of pilots and RIO's, including Cunningham and Driscoll who were ordered to the school immediately after downing their fifth MiG.

"We actively seek aircrews who have downed MiG's, but that's not the sole criterion," says Cdr. Box. "We think of two air wars in Vietnam — BTG [before *Top Gun*] and ATG [after *Top Gun*]." He explains that the watershed point came in late 1969 when Fighter Weapons School graduates entered the arena.

The success of fighter pilots against enemy aircraft was pointed out by Admiral Elmo R. Zumwalt, Jr., Chief of Naval Operations, in a recent message in which he said, "Latest combat reports credit Navy carrier pilots with downing 21 MiG's in air-to-air fighter engagements since January 1, 1972, while losing only one plane themselves. This phenomenal 21-to-1 success ratio is a tremendous testimony to the training, skill and courage of our combat aircrews and support personnel who put together the muscle and guts that made this ace high, winning effort possible.

"Please convey to all concerned my pride in the record being written today by the sea-based fighter community in the air superiority role. I am proud to be associated with each of you."

The heart of the one-month *Top Gun* curriculum lies in the 45-hour flight phase in which students, in their own squadron aircraft tangle off San Diego with instructors flying stripped-down, camouflaged A-4 *Skyhawks* whose performance realistically simulates that of the MiG-series fighters in much of the ACM arena.

Top Gun instructors wait over the ocean for the students to find them with radar. Then the close-in hassling begins with opponent combinations of one-on-one, two-on-one, four-on-two, up through complex four-on-four.

"We use various tactics and formations to give them the toughest problem we can," explains Box. "We try to make it just as nasty as can be, and really put them on their toes."

Toward the end of the course, students escort attack aircraft over simulated strike routes. Somewhere along the way, *Top Gun* instructors in their "Mongoose" *Skyhawks* lie in wait to pounce and test the students' ability to get the interceptors before the interceptors get them.

Then, in the post-flight debriefing, comes the real learning period — where instructor and student dissect the hop, moment by moment. "It's not a 'Hey, I shot you down,' type of thing," Box emphasizes. "We're interested in how and why, not who.

"I wish we could get them to be button pushers," chuckles the *Top Gun* boss, "because that would mean we've trained them so highly that they could just automatically achieve the position where they could push the button. Unfortunately, there's more than science to this. We haven't taught any button-pushing robot to be artful.

"That's how we got to this 'how and why' thing," he continues more seriously. "It's the recognition of a situation. Getting misdirected ego out of it. Directing people, training people to the status where they achieve this computer-like stance. Computers don't have ego. Properly directed ego puts it in the art form, but overwhelming ego obstructs."

It was suggested that the button-pusher argument omits the factor of physical strain in air combat where the effort of resisting the G forces cramming the contestants into their seats makes the battle a kind of personal athletic contest. In a duel where

'When they leave Top Gun, they understand what they know.'

hard-as-possible turning is a must, might not the pilot who first eased off on the stick to relieve the punishing G-load be the loser?

"Very true," replies Box, hunching forward as though himself under that strain. "The edge in combat is so slight — and it's a series of edges that gives you *the* edge — it's the little things all put together that win."

Relaxing, he continues, "I'll say one thing about Randy Cunningham. He's in good physical condition. I don't know what his liberty habits are, but he was a PE major and taught PE in high school for three years. His conditioning shows.

"I'll tell you another thing about him. He wasn't one of our students, but he literally made himself a part of our staff, soaking up all he could. He knew every last thing about the other guy, his enemy."

While waiting at Miramar to join VF-96, Cunningham also flew tactical training hops in the back seat of the *Phantom* and the right seat of the *Intruder* to expand his perspective on the entire air combat picture.

Returning to the subject of *Top Gun's* ACM hops, Box proudly notes that his instructors have developed the power of near-total recall. They re-create the engagement moment by moment, analyzing each move to explain the end result, not in terms of who won, but of how it happened.

By the end of 1972, *Top Gun* will have a new tool, the Air Combat Maneuvering Range (ACMR) near Yuma, Ariz. It will electronically record each second of a dogfight and provide instant replay for debriefing.

Developed by the Cubic Corporation just across the fence from NAS Miramar, the ACMR includes a grid of ground sensor stations receiving signals from special instrument packages on each aircraft. The total input becomes a readout giving airspeeds, altitudes, G loadings, attitudes and the relative positions in space of each plane at any given instant (*NANews*, August 1972).

Toward the end of the course, the aircrews fly to the Naval Missile Center, Point Mugu, Calif., for a live missile shot at a nimble drone aircraft put through a series of fighter-type evasive actions by a remotely located controller.

Unlike earlier canned missile exercises in which target altitude and heading changes — if any — were simple to cope with, these shots provide a sporting test of the human skill and judgment needed to position the weapons system so that it can function as advertised.

In the ground school phase, which is concurrent with the flight portion, subjects include the F-4 weapon and missile systems, theory of air combat maneuvering, classic tactics and principles, teamwork and intensive review of Communist Bloc aircraft performance and tactics.

"We provide a relatively sterile atmosphere away from the regular squadron duties where the pilots can concentrate on ACM for a month," Cdr. Box explains.

"We focus their thinking, correct bad habits and misconceptions so they can really get it together. We are responsible for their *understanding* the tactics and becoming highly proficient."

Top Gun offers nothing really new as such, Box points out. "Training command and fleet replacement training is so thorough that the pilot doesn't have to worry about what's going on inside the aircraft when he gets here. He knows how to fly. We merely aid in the squadron's refining process. When they come to us, they are acquainted with ACM tactics."

Then acquaintance becomes knowledge, knowledge evolves to intimacy and intimacy with ACM tactics at last becomes instinct. That is the goal.

While dogfight tactics hold much of the *Top Gun* spotlight, the school verses its students in the full spectrum of the fighter's air-to-air mission in the MiG's back yard or in maintaining sea control for the fleet.

"When they leave they understand what they know and, more important, they know their limitations," Cdr. Box continues. "Incidentally, we aren't trying to standardize tactics. We don't dictate. We seek to promote a certain consistency throughout the Navy by pointing out what has worked and why, but each squadron C.O. can dictate his own doctrine.

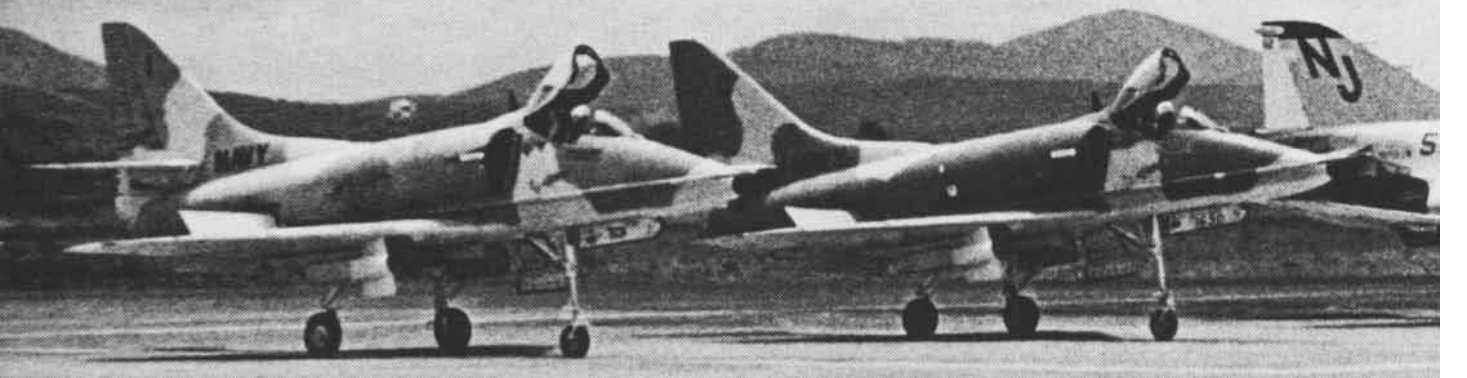
"Think how this complicates the enemy's problem. He can't prepare himself to meet just one set of tactics."

While *Top Gun* imparts new knowledge as it helps students mentally organize what they already know, the school pursues the ultimate goals — aggressiveness and instinctive reaction.

The name of the game is constant recognition of where the weakness is and exploitation of the other man's weakness. Everything is directed toward recognizing and analyzing a dogfight situation instinctively. This takes a healthy aggressiveness.

"We don't talk about defense here. We speak of the least desirable offensive position. The object is to be very aggressive and to down your opponent and not be downed yourself. That's the long and the short of it," says Box, slicing the air with his hand.

"You have to nail that other cat or he's going to nail you. You have to go out there for one thing — to win. It's kill or be killed, and if you go



three-quarter speed, you're gonna get crucified."

Previously in overall charge of Miramar's Fighter Town, Capt. Smith — a WW II fighter ace with 11 confirmed kills — puts it another way. *Top Gun* seeks to develop "a willingness to use the airplane" along with the actual combat skills.

According to Capt. Smith, who retired July 1, present high performance aircraft literally add a new dimension to air combat. WW II dogfights, he explains, were fought largely in descending horizontal planes.

The ability of today's jets to move rapidly in the vertical plane adds to the complexity of the hassle, but both Smith and Box insist that the basic principles learned long before WW II by Rickenbacker and Von Richthofen still apply.

Cunningham couldn't agree more. Of the May 10 engagement in which he and Driscoll got their three MiG's, he recalls, "There we were, up on the perch with everybody going at it and a couple of MiG's going down trailing smoke. It was almost like that opening scene from the movie 'Richthofen and Brown.' It was a weird feeling."

Bartholomay, both of VF-161 aboard USS *Midway*. Their squadron, in less than one week in May, downed four Russian-built MiG's.

Bell, an RIO flying with pilot Pat Arwood, and Bartholomay with RIO Oran Brown, each bagged a MiG-16 in a treetop-level encounter May 18 near Kep Airfield, North Vietnam.

"The tactics I studied and learned in previous training not only were applicable but very successful in our real-world engagement," says Bell.

Brown, whose pilot (Bartholomay) was a member of *Top Gun's* first 1972 class and was on his first mission over Vietnam, adds, "The flight was tactically sound . . . crew coordination was outstanding."

Profiting from the expertise imparted to the squadron by Bell and Bartholomay were VF-161's LCdr. Ronald E. "Mugs" McKeown and Lt. Jack Ensch who six days later, along with Lt. Mike Rabb and Ltjg. Ken Crandall, took on four MiG-17's and two MiG-19's near Kep and flamed two of the enemy.

"Those comments are getting to be pretty typical," Cdr. Box observes. "The nice thing we're hearing now is, this button pusher thing some more. You know, when they thought that's what aircrews were to become, they took the guns out. Now we've found we had to put the guns back in. The F-14 will have a gun."

As he turned from shuttering his hangar office window against the jet roar outside, a visitor commented on a sign taped to Box's door. It reads: "Fight Dirty."

"Fight Dirty . . . Hmmm." Box strokes his chin. "You know, the chivalry that's been romanticized in air-to-air combat, that you sort of have unwritten rules among the contestants? Not so. You do anything you can to achieve victory.

"Fight Dirty? I put that there because . . . well, do anything you can to win. I guess it was Barnum who said, 'Never give a sucker an even break.' You don't give your opponent an even break because, given an even break, he might achieve an advantage. Or he might not be playing by the same honorable traditions you are — and he just might kill you.

"I've had some of these young fellows ask me if this tactic is fair," comments Box as he smooths his thinning

Smith acknowledges that "certain inherent risks" exist in no-holds-barred aerial combat practice but must be accepted to achieve an aggressive training program.

A dividend from the pursuit of excellence was cited by Cdr. Box, who states, "Out-of-control accidents have been significantly reduced since the *Top Gun* program has been in force."

This he attributes to successfully "matching the aircraft's maximum performance envelope to the pilot's maximum performance envelope."

The overall success of the training program is attested to by *Top Gun* graduates Lt. Mike Bell and Lt. Bart 'Damn, it was *just* like the hassles we had at *Top Gun*.' "

Through a corollary to the formal curriculum, nearly every crew of Pacific Fleet fighter squadrons squares off in the air at least once against *Top Gun* "Mongoose" pilots in the Adversary Program. During a ten-day period, a squadron and the *Top Gun* staff meet in as many as 80 encounters, then participate in thorough post-flight critiques with instructors and former students.

Asked why the Fighter Weapons School is named *Top Gun* if the planes (F-4's) its students fly have no guns, Box answers, smiling, "Let's look at hair. "Wow!! You can't fight with fairness. Second place, last place, death! They're all one and the same.

"You're playing in his back yard, with his bat and his ball, and you have to be damned good, you've got everything going against you.

"You have to keep it simple. Some people call it the kiss technique: Keep It Simple, Stupid. I think the best example of that was a letter my RIO on my last cruise got from his mother.

" 'Tom,' she wrote him, 'Why don't you and Roger just sneak up behind him and shoot him down before he knows you're there?' Beautiful!

"Tom's mother has the picture."

The U.S. Navy Special Board of Flight Surgeons

To Fly or Not to Fly

By Captain M. D. Courtney, MC

In 1957, the Navy's Bureau of Medicine and Surgery (BuMed) directed the establishment of a Special Board of Flight Surgeons. This board consists of specialists in aerospace medicine and related fields who can make recommendations concerning the physical qualifications of Navy and Marine Corps aircrew personnel to continue in a duty involving flying. The purpose of this article is to describe the composition of this special board and its method of operation and to review the kinds of cases referred to it for the past 14 years and the recommendations made for the disposition of these cases.

The text of this article [reprinted here in part from U.S. Navy Medicine*] was presented by Capt. Courtney at the AGARD (Advisory Group for Aerospace Research and Development) Aerospace Medical Panel Meeting on "Clinical Causes for Grounding" held in Oporto, Portugal, last year.*

In order to assist the Chief of BuMed, the Chief of Naval Personnel and the Commandant of the Marine Corps in determining the qualifications of flight personnel to continue in an active flight status, the Chief of BuMed recognized the need for a group of specialists to render complete evaluations on Navy and Marine aircrew personnel. It was recognized that the most logical place to convene such a board was the Naval Aerospace Medical Center, Pensacola, Fla. The center, composed of the Naval School of Aviation Medicine (now the Naval Aerospace Medical Institute—NAMI) and the Naval Hospital, Pensacola, possessed the specialized equipment and the requisite personnel to perform the comprehensive studies necessary to determine whether referred personnel were physically qualified and aeronautically adapted for duty involving the actual control of aircraft or for other duty involving flying.

In 1957, the commanding officer of NAMC was designated the convening and reviewing authority for the board. The commanding officer of NAMI was appointed the board's senior member with qualified flight surgeons and other specialists on the staff of the institute and the naval hospital as members. The specialist members of the board would participate in the examination of cases appearing before the board and in the deliberations of the board. However, they would not be eligible to vote on the recommendations to be submitted by the board. The precept of the board gave voting privileges only to qualified flight surgeons.

When recommended by BuMed, the special board of flight surgeons would evaluate cases ordered to appear before it either by BuPers or the Commandant of the Marine Corps. BuMed would determine the requirement for a special board examination, either upon the recommendation from a medical report submitted by an individual flight surgeon or a local board of flight surgeons in the field or upon the recommendation of an advisory counsel convened within BuMed. Recommendations for aircrew personnel to appear before the special board generally were to be made when such personnel presented a medical problem which had not been satisfactorily resolved by the field aviation medical personnel, or a question raised in the minds of the aviation medical personnel in BuMed as to the individual's physical qualifications to continue in a flying status.

In addition to the above, board members are now also appointed from the staff of the Naval Aerospace Medical Research Laboratory, a recently established unit under the Medical Institute, responsible for the research functions previously performed by the institute. The special research capabilities of this activity are available to the special board.

Personnel reporting to the special board arrive in Pensacola, usually on Sunday, reporting to the physical evaluation division at NAMI the first thing on Monday morning. At that time, the medical record is reviewed and, depending upon the major medical problem for which the individual has been referred, one of the medical services within the institute is assigned to carry out the major evaluation and work-up of the case. This may be internal medicine, cardiology, neurology, psychiatry, etc. Although one service is responsible for the major work-up of the case, the individual is also scheduled for examinations by all the medical services, receiving complete dental, laboratory and X-ray ex-

The Special Board of Flight Surgeons, left, is assembled. Above, an opthamologist examines an aviator's eyes. He will brief the members of the board on the test results.

aminations, plus any other examinations such as surgical, orthopedic, dermatology, etc., that may be indicated. By the end of the week, except in unusual circumstances, the individual will have been given a very complete examination of all the body systems and a very exhaustive examination of the system involved in the primary medical problem in question. If the physical evaluation conducted by the board determines there is some question as to the advisability of the individual to continue in a full duty status, the process of the board may be discontinued at that point and the person ordered for admittance to a naval hospital to determine his qualifications to remain on full duty.

Upon completion of the physical and mental evaluation by the special board, the individual appears before the assembled board. The assembled board must consist of at least four voting members, that is, qualified flight surgeons, and as many other flight surgeon members and consultants as are available. Usually 14 to 22 voting members plus some eight to ten consultants are present. This assemblage usually convenes on a Friday afternoon at NAMI with the commanding officer of the institute presiding.

The proceedings of the board are fairly informal. Initially, the individual whose case is under consideration is present while his medical case and past medical, family, social and military history are presented by a representative of the service which has been responsible for preparation of the case. Upon completion of this presentation, the individual is encouraged to make any comments he desires on his behalf, and members of the board may make inquiries of the individual. Upon completion of this phase, the individual appearing before the board is requested to leave the room. Then the results of the various physical examinations and the evaluations conducted are presented and the presenting service gives its diagnosis and recommendation as to disposition. Following this, discussion of the case ensues; upon completion, the presiding member of the board asks for a vote by the qualified flight surgeons present. The members cast their votes either agreeing or disagreeing with the recommendations proposed. A majority vote carries. However, in the event of a very close vote and a strong feeling against the majority vote by several board members, a minority report may be entertained by the senior member and, if approved by him, it will be submitted along with the recommendation of the majority. In the case of designated Naval Aviators or pilots, several recommendations may be considered. These are:

- The pilot may be returned to flying — Service Group I. Personnel in this service group may fly any aircraft in which they are qualified and may operate on and off aircraft carriers.
- Aviators classified in Service Group II may fly any type of aircraft in which qualified; however, they may not fly on or off carriers except in helicopters.
- In Service Group III, a Naval Aviator may fly in actual control only in a multiple controlled aircraft, and a qualified aviator in Service Group I or II must be aboard.
- The aviator may be placed in a temporary grounding status.
- The aviator is recommended for permanent grounding.
- One further category may be recommended—NIACA. This means the aviator is physically qualified to fly in naval aircraft but not in actual control of the aircraft and may continue to

receive his hazardous duty pay for flying. NIACA is only recommended when there are no medical contraindications to the person flying and is usually reserved for older aviators who are required to do considerable administrative flying.

Inasmuch as the special board of flight surgeons is an advisory group, the decision submitted by the board to BuMed is only a recommendation. BuMed may or may not concur; however, in the majority of cases, the board's recommendation is approved. BuMed will then submit its recommendation on the individual case to BuPers in the case of Naval Aviators or to the Commandant of the Marine Corps in the case of Marine Corps Aviators.

It should be noted that aviation personnel of the Coast Guard are also evaluated by the special board. Recommendations for the disposition of such personnel are sent directly to the Commandant of the Coast Guard.

In addition to designated Navy, Marine Corps and Coast Guard Aviators, the special board has referred to it, for medical evaluation, Naval Flight Officers and students in the various Navy flight training programs. This latter group of personnel is ordered directly to NAMC by CNATra.

From June 1957 to December 1970, 580 individuals appeared before the board, some as many as two or more times, for a total of 720 cases evaluated. Of all the cases, 499 or 70 percent were returned to some category of flight status and, of the remaining 30 percent, 25 percent were permanently grounded, three percent were temporarily grounded and two percent were classified NIACA.

The most common condition appearing before the board was cardiovascular disorder. A total of 335 diagnoses in this area were made equalling 42 percent of all the diagnoses evaluated by the special board. Of the number of individual cases in this category, 117 returned to Service Group I; seven to Service Group II; 107 to Service Group III; only nine were permanently grounded; 82 were temporarily grounded; and 13 were classified NIACA.

Psychiatric cases comprised the next most common condition with 111 cases evaluated, or 14 percent of the total presented for review. Of this total, there was an approximately equal division between those returned to some category of control of aircraft and those who were grounded: 56 percent returned to a flying status and 44 percent were grounded.

Neurological cases referred to the special board totaled 103. Some 68 percent of these were returned to flight status and 32 percent were grounded.

The board saw 91 individuals with ophthamological problems: 12 percent of the cases heard. Forty-two percent of those with problems in this category had some impaired visual acuity, but most individuals were returned to some category of flight status. The next most common eye condition was ocular muscle imbalance (18 percent) with eight of the sixteen individuals with this condition grounded.

Internal medicine, otorhinolaryngology, orthopedic and surgical diagnoses completed the list of clinical causes evaluated.

A review of the case history files indicates that a more lenient position has been taken by the special board in the past several years concerning psychiatric cases. Changes in the type of disposition in some cardiovascular conditions have also been evident. These areas certainly deserve more study.

The material available in the board's files, if adequately analyzed, can prove beneficial to future board members and to all aviation medical persons who are charged with the responsibility of medically evaluating the physical qualifications and aeronautical adaptability of flight personnel to safely continue in a flying status. But it must be remembered that the Navy's Special Board of Surgeons is in no sense an administrative or investigative body. Its mission and purpose is to "Keep Them Flying Safely."

The vectorcardiograph is used to track electrical impulses as they pass across an aviator's heart muscle during treadmill exercise, left. Naval Aviators scheduled to appear before the board receive psychiatric examination, above, as part of week-long evaluation.

Special Training at NAMI

By Jim Dowd

"I sincerely believe the physiological training our people conduct has a lot to do with the comparatively low accident rate we have in Naval Aviation," says Captain Marvin D. Courtney, former commanding officer of the Naval Aerospace Medical Institute (NAMI) at Pensacola, Fla. And it starts, quite naturally, at the beginning.

All aviation officer candidates and officer students reporting to the Naval Aviation Schools Command for training in any of the aviation programs are scheduled at NAMI for instruction in aviation physiology, including oxygen equipment and night vision training. Those students assigned to high performance jet aircraft return at a later date for instruction in high altitude physiology, emergency egress systems and, in special cases, flash blindness and rapid decompression.

NAMI's physiological training division also conducts courses of instruction for student flight surgeons, aerospace physiologists and aerospace physiology technicians who, upon graduation, are assigned to other units.

The classroom instruction and lectures on the personal physiology of flight precede the actual checkout for future flight crews in personal survival equipment, low pressure chambers and ejection seat trainers.

Hypoxia demonstrations in the low pressure chamber are conducted at a simulated altitude of 25,000 feet with positive pressure breathing performed at 40,000; altitudes up to 100,000 feet can be simulated in the 9A9 low pressure chamber.

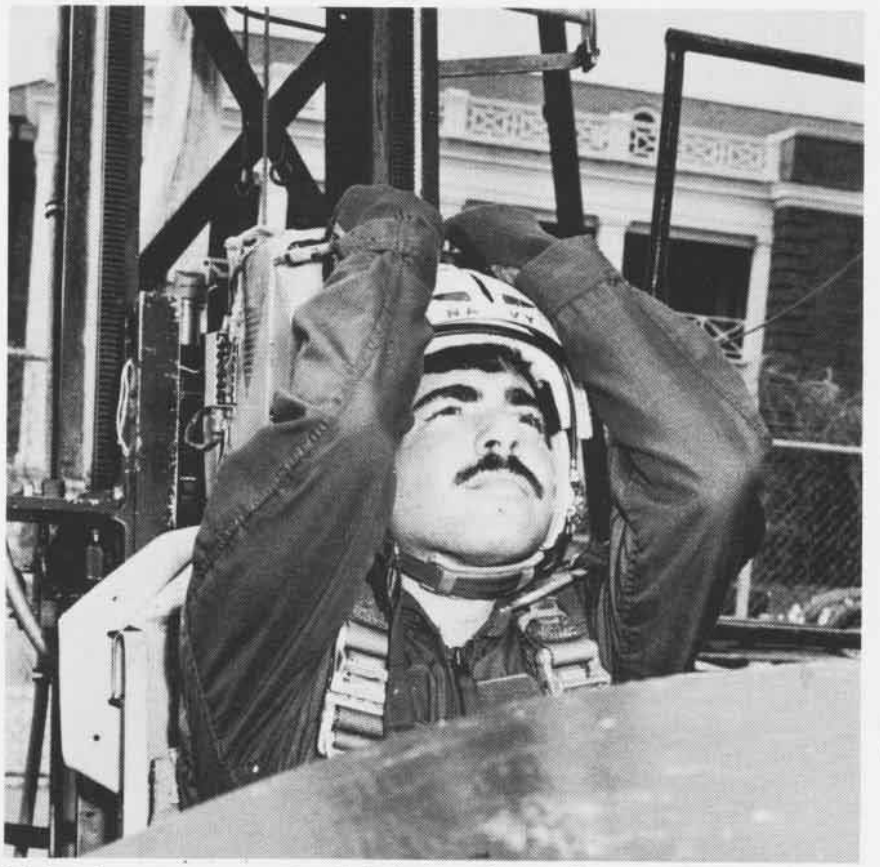
Future flight crews and crew members returning to NAMI for refresher training learn how long it takes for normal vision to return after encountering flash blindness. Night vision training points out visual problems that can occur during night flying.

Vertigo and disorientation are also stressed to acquaint the crews with the dangers involved in following personal sensations rather than aircraft instruments when flying in clouds with no horizon or visual reference points.

Specific categories of flight crews receive special training. Personnel headed for duty in Air Force or NASA projects related to zero gravity are given rapid decompression training. Pilots transferring to units flying C-130's and other aircraft deploying to Operation *Deep Freeze* are also given rapid decompression training, and student flight surgeons and aerospace physiologists training at NAMI are indoctrinated in the use of the full pressure suit.

A program to upgrade the physiological training at the institute is currently under way. It calls for installation of a more sophisticated, high altitude, rapid decompression chamber (Device 9A15).

A saving of lives, money and time will be realized through use of 9A15 by exposing aircrew personnel to physiological hazards of high altitude flight under controlled conditions. When using the new device, it will be possible to simultaneously indoctrinate 20 aircrewmen in the proper use of operational life support equipment



A future aircrewman prepares to pull the face curtain upon the command of "Fire," above. This action will explode a cartridge that will send him eight to twelve feet up the track.

and systems at simulated altitudes up to 43,000 feet, or to simultaneously indoctrinate two aircrewmen in proper utilization of the omni-environmental full pressure suit while undergoing rapid decompression to a simulated altitude of 54,000 feet.

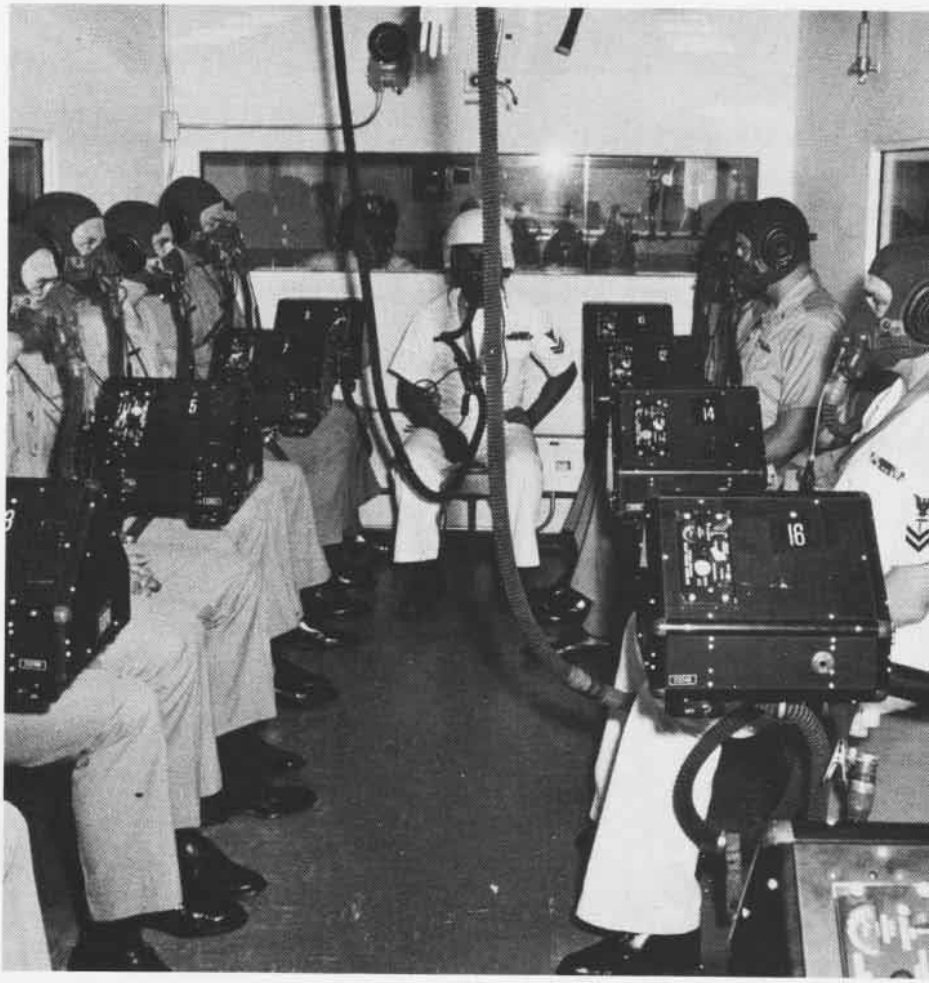
Other new equipment at NAMI includes the 9E6 universal ejection seat trainer. It incorporates a pneumatic catapult rather than the conventional ballistic catapult. This new device is designed to accommodate all ejection seats currently found in naval aircraft and is installed in a new structure situated inside the walled area adjacent to the Institute.

Commander Morris J. Damato, MC, head of physiological training, states that 3,118 students received physiological training in 1971.

Among the many graduates who come back to Pensacola to give personal evaluations of the training at NAMI was a veteran combat pilot who had been shot down twice in his F-8 *Crusader* over North Vietnam. Lt. Robert F. Adams spoke to a graduating class of aerospace medicine and aerospace physiology technicians at

Face curtain pulled, the Martin-Baker ejection seat takes aircrewman for a short, fast ride.

NAMI: "The training I had been given instilled every confidence in the ejection system. Because of my training, my hands went almost automatically through the procedures necessary to get me out of my burning aircraft each time. For myself and the many thousands you and other technicians have trained and will train in the future, I thank you."



Flight crew members are accompanied by hospital corpsmen and monitored by others, all qualified as aerospace physiology technicians, when they check out in low pressure chamber.

NAVAL AIRCRAFT

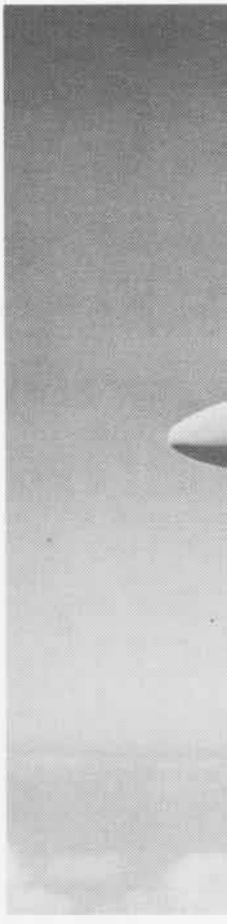
Co

The *Cougar* first made its appearance in 1951 as an outgrowth of its predecessor, the Grumman *Panther*. It continued in the same designation series with the first version becoming the XF9F-6. The *Cougar's* first flight was made in September 1951 and, by November 1952, it was introduced into active service, going first to VF-32 on the Atlantic Coast, becoming the first carrier-based sweptwing fighter. The *Cougar* soon joined the air war then taking place in Korea. Though not the fastest of that day, the *Cougar* was a tough, stable gun platform at nearly all speeds and altitudes.

The F9F-6 differed from the *Panther* series in its 35-degree swept wing. The fuselage and engine remained essentially the same as in the F9F-5. In addition to a swept wing design, the plane featured leading edge slats, wing fences and spoilers which replaced ailerons. The *Cougar* demonstrated an overall improvement in performance and better stability than the *Panther*. The next in the *Cougar* series, the F9F-7, was designated as a day fighter only and, though its J33 engine produced less thrust than the J48 in the -6, performance remained about the same. The majority of these *Cougars* went to Marine squadrons.

The final *Cougar* was the F9F-8. Later redesignated the F-9J, it was lengthened eight inches to accommodate increased fuel capacity and had its wing area increased. The F9F-8T (TF-9J), 34 inches longer than the F9F-6, was a tandem two-seat trainer and was the first sweptwing jet used by the Naval Air Training Command.

Cougars were modified for a wide variety of uses, including photo reconnaissance and target drones. They became the *Blue Angels'* first sweptwing planes, in use from 1955 to 1958.



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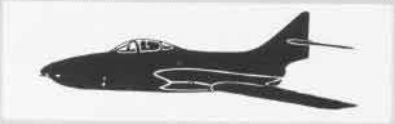
1962 Redesignations
F9F-8/F-9J
F9F-8T/TF-9J
F9F-8B/AF-9J



Length (without refueling boom)		
F9F-6/7		40'11"
F9F-8		41'9"
F9F-8T		44'4"
F9F-8P		44'2"
Height		
F9F-6/7		12'4"
F9F-8/8P		12'3"
F9F-8T		12'1"
Wing span		34'6"
Engine/Thrust SSL		
F9F-6	J48-P-6A	6,250 lbs.
F9F-7	J33-A-16	6,250 lbs.
F9F-8	J48-P-8A	7,250 lbs.
Maximum Speed		
F9F-6		561 kts.
F9F-7		545 kts.
F9F-8/8T/8P		562 kts.
Cruise Speed		
F9F-6/7		442 kts.
F9F-8		448 kts.
F9F-8T		424 kts.
F9F-8P		438 kts.
Combat Radius		
F9F-6		260 nm
F9F-7		390 nm
F9F-8		385 nm
F9F-8T		340 nm
F9F-8P		360 nm
Service Ceiling		
F9F-6/8T		41,000'
F9F-7		40,200'
F9F-8		42,500'
F9F-8P		41,500'
Armament		
F9F-6/7/8		four 20mm guns
F9F-8T		two 20 mm guns
F9F-8P		seven cameras in three stations

TAR BIRDS

By Major H. A. Gideonse, USMC

The Vietnam War added a new and unique aspect to Marine Aviation — one that was not in evidence before and one that may not again be fully utilized for some time. It is symbolized in the *TAR Bird*. What exactly is a *TAR Bird?* It is *not* a seagull trapped in an oil slick. It is an aircraft that performs Tactical Aircraft Recovery.

Aircraft recovery, briefly, is the retrieval of a downed airplane from one point and its transportation to another point. Its tactical aspect is that the operation occurs in a combat zone. Not all aircraft recoveries are accomplished in combat. A few have been performed elsewhere. These are known as administrative aircraft recoveries (AAR's). Usually they are made by truck or train. In some instances, they are even made by boat or barge. The main reason that AAR's are made by surface means, be it land or sea, is that there is less danger of inadvertently dropping the recovered aircraft.

When any load is transported externally by an aircraft, the possibility exists that a malfunction of the carrying apparatus (hooks, pendants, racks, slings, hard points) may occur. Not only is this a hazard to people and property on the ground but the load itself is likely to be destroyed or seriously damaged. This method is difficult to rationalize when alternative methods are available.

Administrative aircraft recoveries fall into two basic categories, field and airfield. Field recoveries originate in the boondocks. Airfield recoveries originate, as the word implies, at an improved landing area (runway, helipad, etc.) or on an aircraft-carrying ship (CVA, CVS, LPH, LPD, LSD, or LST). The AAR's usually terminate at an airfield.

In most instances, recoveries that are accomplished by air are lifted by helicopter, although some have been made by transport aircraft such as the C-5, C-141, and C-133. In short, it takes a jumbo-type fixed wing to load another aircraft internally.

Sea Stallion recovers another of its kind.

With the advent of the Vietnam conflict, it became readily apparent that we would soon run out of assets if we did not establish a concrete program to recover our downed aircraft. In the fall of 1965, the Marine Corps tried to fill the gap with the CH-37, a reciprocating twin-engine helicopter, and the only heavy helo in the inventory at the time. It was not really equipped to handle the job. In fact, after the ten-year-old CH-37 was armed and armor plated, its payload was similar to that of the CH-46, our medium helo. Upon occasion, it even became necessary to rely on the U.S. Army's CH-54 crane or CH-47's to retrieve our downed helos. This, of course, was not the preferred position, since the Marine Corps has historically tried to retrieve its own casualties, be they men or machines.

Help was on the way, however, in the form of the CH-53, our present heavy lift helicopter. The CH-53 was introduced into Vietnam at the beginning of 1967. Its arrival was well ahead of schedule and was specifically for a special mission — tactical aircraft recovery. So important was this mission that the CH-53 was otherwise restricted from fully engaging in its cargo-carrying missions as set forth in the standardization manual. The Marine Corps did not want to risk losing a single CH-53, mainly because it was a helicopter that could not, at the time, recover itself.

To say that the CH-53 performed admirably in its new role as the *TAR Bird* could be considered a gross understatement. When the last *TAR Bird* squadrons left Vietnam in the summer of 1971, more than 1,500 TAR's had been successfully accomplished. The total dollar value of those "saves" far exceeded the total purchase price of the whole CH-53 program — roughly $607 million. The Marine Corps purchased 264 CH-53's at a cost of about $2.3 million a copy. A small portion of those appeared in SEAsia — only 57 were on hand at the height of the build-up in 1969. These were divided among the three squadrons then in-country — HMH's 361, 462 and 463.

The vast majority of field TAR's were, of course, other helicopters.

When a chopper gets shot down, the pilot is usually able to make an autorotative/controlled landing. When a fixed wing gets shot down, it generally crash-lands and normally there is not enough left to merit salvaging. Conversely, in most cases, the downed helo lives to fight again another day.

Rescuing an aircraft down in the field is not an easy task. As a matter of fact, a TAR can be the most demanding mission an H-53 pilot has to execute. He must perform all the functions that are required of a standard mission; and, in addition, he must be familiar with the type aircraft to be recovered, its characteristics and its estimated weight. He should know if any items were removed by damage and if any items will be intentionally removed prior to recovery, such as guns, radios, blades or wings.

The recovery pilot must determine if the center of gravity has been altered and if it has, counterweights will probably be installed or the lifting sling adjusted to compensate.

The *TAR Bird* driver must know the area of the downed aircraft. Is it sloped or flat? Is it open or jungle? What obstacles, if any, are around? What is the best approach and retirement route? What is the elevation of the downed aircraft? Where is the enemy? (If the aircraft was shot down, he may be in the area.) What sort of supporting arms is available? What are the plans for recovery, hookup or security crews? Who will be the on-scene commander? What are the radio frequencies and call signs for everyone involved? The pilot must compute his power available based on altitude, temperature and humidity.

Will the recovery aircraft have to be reduced in weight (usually a reduced fuel load) to be successful? If the *TAR Bird* has a decreased fuel load, will the pilot have enough gas to make it out and back, or will he have to make an interim stop? What will the pilot do if the drogue chute collapses and the recovered aircraft decides to fly sideways? Will he still have enough fuel with the decreased airspeed and increased power settings required in such an instance? At what airspeed can the downed aircraft best be carried?

Not all aircraft come home right side up, as a wrecked H-1 is recovered by a Sea Stallion.

What type of retrieval equipment will be used (sling, cable, grab links, belly bands, swivel chute, rope, band saws, tools, etc.)? How should the downed aircraft be rigged? Will the pilot be able to double-check the work with an inspection of his own? At what point will the pilot perform his engine-topping checks before he attempts to recover the downed aircraft? What are the plans if the engines don't measure up to par?

Once the pilot has picked up the load, what will he do if the transported aircraft starts oscillating? Will he intentionally drop it or will he attempt dampening techniques? What will he do if he loses one of his engines? If it is necessary to drop the recovered aircraft en route, who will do it, pilot, copilot or crew chief? Who will release the recovered aircraft upon arrival at destination?

There are many other questions that have to be answered prior to launching on any TAR mission. Often the aircraft recovered reaches a weight double the 8,000-pound payload specified in the standardization manual. Fortunately, the H-53 is stressed to take these heavy weights. In fact, under controlled conditions at the Sikorsky factory at Bridgeport, Conn., the H-53 has lifted more than triple its design payload. Thus, the aircraft's growth potential is most promising.

Whether the aircraft to be recovered is a UH-1E *Huey* that costs approximately $250,000 or an F-4B that sells for more than ten times that, the CH-53 is equal to the task. It has made its mark in the annals of Marine Aviation. The record shows that this is one aircraft that has more than paid for itself. Whatever it does from here on out is icing on the cake!

Spare Part Support

The Aviation Supply Office (ASO) in Philadelphia has, for many years, participated in an international logistics program that provides spare-part support for U.S. aircraft purchased by nations of the Free World under the military sales program.

A "turnabout" in international logistics occurred early this year when the first United Kingdom V/STOL AV-8A's were delivered to Marine Air Group 32, MCAS Beaufort, S.C.

The Hawker Siddeley AV-8A, a close-support jet fighter designed to leave the ground vertically or, with an extremely short run, from an unprepared surface, is the only operational weapons systems of its type available in the world today.

By purchasing its first V/STOL from the British, the Marine Corps accelerated its schedule for attaining V/STOL capability in the fleet by two years.

Prior to delivery of the first AV-8A's, the aircraft underwent three and a half months of tests and evaluation during Board of Inspection and Survey Trials at NATC Patuxent River, Md. Material support of these trials is normally a matter of augmentation by the prime contractor who contributes "contractor furnished material" and "government furnished material" requirements. In the case of the AV-8A's, these trials were totally supported from Navy resources.

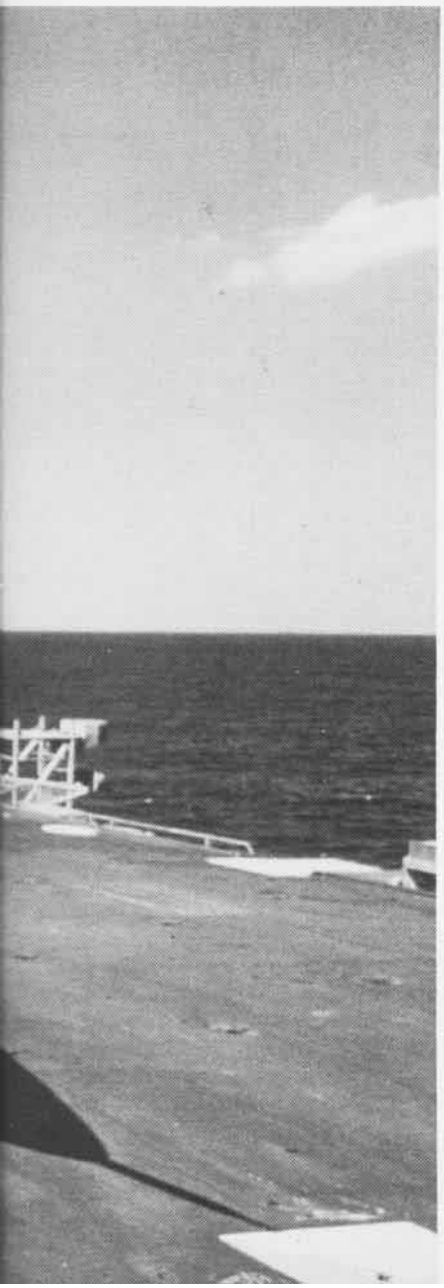
The first and most crucial requirement for the support of any aircraft

PHC Wade Davis

is the initial supply support. This phase of the AV-8's program has been completed; MAG-32 has been outfitted, backup is ready, and provisions have been made for the repair cycles to start in a timely and efficient manner. The normal replenishment process should assure continued effective support.

Coordinating all the facets of the initial support program for the AV-8A at ASO was the aircraft's weapon systems support manager, Lieutenant Colonel William H. Sackett, USMC.

As the program proceeds, the weapon manager monitors the supply support status on the aircraft. He is assisted by the weapon coordination group which meets periodically under his chairmanship to review supply support progress and to resolve problems. To monitor the effectiveness of the supply support, the weapon manager maintains close communication with all organizations involved in the support of the AV-8A.



Plans for future support requirements are made in the weapons system division at ASO to which the weapon manager is assigned. These plans are computed on the basis of projected plans for the operation or rework of the aircraft and involve such considerations as past and future use of the aircraft and engines, present and future deployment, and future outfittings. This information is translated into "program elements" which are used by commodity managers at ASO in procurement actions. Some of these program elements are operating aircraft flight hours, aircraft maintenance cycles, and aircraft and engine rework.

To provide initial support to the AV-8A, more than 50,000 line items were reviewed during initial provisioning action in England in June 1969. Twenty-three thousand items were selected as required for initial support of the AV-8A during the first 18 to 24 months of operation. Between March and June 1970, contracts were placed for these items, which are being procured from 46 contractor/vendors in the United Kingdom. Of the 23,000 items selected, 22,000 will be managed by ASO with the balance managed by other Navy inventory control points and Defense Supply Agency activities. Unique problems encountered included item identification and the conversion of British specifications and standards to U.S. military standards. The identification and federal stock numbering of all items provisioned for support were completed before January 1971.

All documentation necessary to provision, procure, and position material at the site of use was begun more than a year prior to the first delivery to the Marine Corps.

Support material lists were prepared by the contractor and distributed in June 1970. These are contractor-acquired or government-furnished spares, repair parts and support equipment used during the BIS trials and other early fleet programs. As previously stated, in the case of the AV-8A's BIS trials, all of these items were provided from Navy sources.

Initial outfitting lists (IOL's) and aviation consolidated allowance lists (AVCAL's) were prepared and distributed in August 1970. The IOL's indicate the range and quantities of spare and repair parts, special tools, test equipment and the support equipment required to support an aircraft during its initial period of service. AVCAL's list material necessary to place and maintain an aeronautical activity in a material readiness condition.

The interim master repair list, reflecting the commercial repair activities and shipping instructions for components requiring repair, was distributed in December 1970.

Normally, initial outfittings are allocated to an outfitting supply point and drawn on by the air group. However, for the AV-8A, initial outfitting material is going directly from the contractor to the air group, station and rework facility.

Commercial repair contracts are established with the contractor if he will assume responsibility for fit, form, function and quality until in-house repair capability is established. In the case of the AV-8A, commercial repair contracts have been prepared with the United Kingdom and U.S. vendors until repair and rework capability is established at the Naval Air Rework Facility, Cherry Point.

In conjunction with commercial overhaul, a transportation plan was established to provide expeditious turnaround of material needing repair.

With the initial complement of AV-8A's introduced, on-site support has been positioned and backup support at the stockpoint has been provided.

As more aircraft enter the program, the weapon manager is involved in changing operational concepts, expansion of maintenance philosophy and budgetary constraints.

Even though some of the supply sources are in the United Kingdom, the initial support effort has been highly successful — the result of ASO's comprehensive monitoring of the support program and the consistent cooperation of Hawker Siddeley and its vendors. Together they have met deadlines for full initial support of the AV-8A —the first foreign aircraft purchased by the U.S. since WW I.

The Selected Air Reserve

JOSN Chip Roska

By Mike Miller

The great flood of '72 has receded, and the people of Pottstown, Wilkes-Barre, Scranton and Harrisburg, Pa., have returned to their homes, or what's left of them, to begin the heartbreaking task of cleaning up.

Members of Naval Air Reserve Helicopter Antisubmarine Squadrons 74, Quonset Point, R.I., and 75, Lakehurst, N.J., and the Marine Air Reserve Training Detachment at Lakehurst, who joined helicopter crews from HC-2, HS-15 and the Army Aviation Detachment from Lakehurst in the rescue efforts, have now returned to home base. The events of June 22, 23, 24 and 25 are now history—but what history!

It began with a call to HC-2 the evening of the 22nd from the Pottstown, Pa., Disaster Control Coordinator. Flood waters were rising and residents needed assistance — fast. Within an hour after receiving the call, helos were on the way.

It was hairy flying. Rain, poor visibility and high winds made it bad enough getting there, but on arrival, additional hazards were encountered. "I have to say that in the 15 years that I've been flying, I have never encountered tougher flying conditions," says Cdr. Mike Marriott, HC-2 X.O. "There were high tension power lines and tall trees, all of which had to be sighted in the dark. And I think that everybody in Pottstown has a 40-foot TV antenna."

It was "damn the TV antennas, full speed ahead" as far as the pilots and crews were concerned. Flying round-the-clock, using their searchlights to spot the hazards and light flood victims, the helos flew up and down flooded streets lifting people from roof tops, trees and second story windows. Time after time, aircrewmen were lowered to help people into the Billy Pugh rescue nets. People who needed help often had to signal with candles, since most areas had no power. This proved a blessing in disguise; electric short circuiting caused many fires in the Wilkes-Barre, Scranton area.

Some dangers were unintentionally caused by the rescue victims. In one case, a net was lowered to a man stranded on a roof. He grabbed the line, hesitated as if he had forgotten something, then decided to go back into the house. Evidently he was afraid the helo would leave him, so he wrapped the rescue cable around the chimney before he went back inside. A gust of wind came along, buffeting the helo and giving a hard yank on the line. Fortunately, the chimney came down, not the helo.

When the waters of the Susquehanna River began rising at an alarming rate, sandbags were needed to reinforce the dikes in the Wilkes-Barre, Scranton area. An H-53 helicopter, attached to MARTD Lakehurst, flew 12,000 sandbags from the Philadelphia Naval Base and Fort Dix to Wilkes-Barre. But the waters rose faster than the volunteers manning the dikes could stack them.

When the dikes broke, helos from HC-2, HS-15, HS-75, the Marines and

JOSN Chip Roska

LCdr. Andrew Glutting, HS-74, peers out at one of the few Wilkes-Barre bridges above water, opposite page. Above left, an HS-75 helo hovers over a Wilkes-Barre school where four youths were stranded. Scene at left was repeated many times. Above, crewmen look for trapped flood victims.

the Army Aviation Detachment were dispatched to rescue flood victims caught in the sudden onslaught of water. Every operational Lakehurst helo headed for Wilkes-Barre. The biggest evacuation was underway and Navy, Marine Corps and Army helicopters from Lakehurst were in the thick of it.

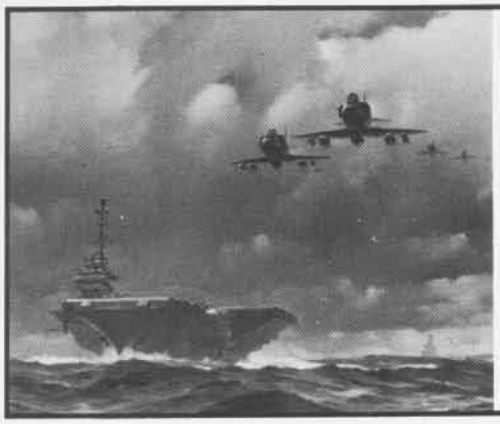
When the worst was over, the helicopters began coming home. Bone-tired, bleary-eyed, unshaven crews tumbled from their choppers to get some well earned rest. Some of them had worked 28 straight hours evacuating people.

There is no way that the actions of every squadron and every man in them can be covered in a single story. There were stories told by men who were so exhausted that they were literally falling asleep while trying to talk. And these are only a few, told to one man.

There are other stories, of the men who worked tirelessly, not actually rescuing people, but keeping the helos flying: the mechanics and ground handlers.

As the days pass and the figures trickle in, there will undoubtedly be more statistics for the record books. Presently the totals are: cargo (food, water, medical supplies) — 167,309 pounds; persons rescued or evacuated — 1,790 (the number the pilots and crews could account for. More than one exhausted pilot stated that "after awhile, we just lost count."), plus 11 dogs, 13 cats, a raccoon and two ducks; and over 300 flight hours logged.

The whole operation was carried out without a single Navy or Marine Corps fatality or serious injury to either helo crews or evacuees. History will record this major disaster and the fact that the U.S. Navy and sister services were there as they have been in the past and will continue to be in the future — lending a helping hand.



at Sea with the Carriers

Hancock (CVA-19)

Major General James F. Hollingsworth, Commanding General Third Regional Assistance Command, flew aboard *Hancock* to personally thank the carrier's commanding officer, Captain Albert J. Monger, and her pilots and crews for their air support during the siege of An Loc, which he said did much to lift the heavy communist pressure.

Fighting Hanna jets hit enemy positions in Military Regions One, Two, Three and Four in support of Republic of Vietnam troops. Their targets included an enemy troop concentration, bunkers, trench lines and mortar positions, enemy emplacements and supply areas, and tanks and gun positions. Navy planes also scored hits on enemy batteries and command posts, automatic weapons positions and guns. As enemy activity increased in the Quang Tri area, the carrier's jets stepped up their air strikes. A flight of A-4's rolled in on ten enemy emplacements, leveling the entire complex. They attacked enemy troops, damaged many facilities and left the enemy-held area in flames as they swept back to sea.

After a day of rest, *Hancock's* planes moved northward to hit targets in North Vietnam — warehouse areas, barges and watercraft, camouflaged supply caches and a surface-to-air missile launcher. They struck enemy supply areas, and rail, truck and water transportation systems, hitting targets from the southernmost major city of Dong Hoi to the northern port city of Haiphong. Extensive damage was done to SAM missile sites, POL barges and railroad bridges.

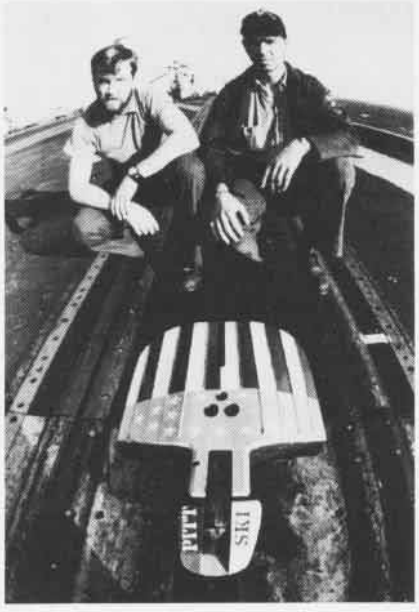
Hanna's pilots credit their successful strikes to well coordinated team efforts with everyone doing his job and with fighter planes supporting the bombers in their combat missions.

During one of his bombing missions, Commander Dave Morris, C.O. of a Miramar-based fighter squadron, logged his 3,000th hour in a *Crusader.*

America (CVA-66)

Norfolk-based *America* returned to Southeast Asia in mid-July to begin her third combat tour in WestPac — under the command of Captain Burton H. Shepherd.

Aircraft of embarked CVW-8 ranged over Vietnam in 87 sorties against enemy targets on the first day.



AB2 Richard F. Pitt and AB3 John Malinowski display red, white and blue shield painted on America's cat to show "the American spirit."

In support of Republic of Vietnam troops in Military Regions One and Two, the carrier's pilots flew strikes against enemy positions, bunkers, tracked vehicles, artillery pieces, tanks and mortar positions. They hit enemy targets north and south of the demarcation line — barges, AAA positions, mortar sites and ammunition storage areas.

When Lt. Tom Wieland of VA-82 flew aboard *America* on his return from a combat mission, it marked the attack carrier's 87,000th arrested landing. He was flying a squadron A-7E.

Kitty Hawk (CVA-63)

Kitty Hawk has been serving as mail carrier for the Seventh Fleet since April, which means receiving the mail of some 200,000 Navy men. Fifteen postal clerks handle about 2,500 pounds of mail daily as they process and route the mail to its destination.

VA-192's Air Force exchange pilot, Maj. Bill Mahler, recently counted his 100th landing aboard *Kitty Hawk.* Since joining the *Golden Dragons* he has been indoctrinated in the ways of Naval Aviation and become a true *Dragon.*

The carrier's pilots have been flying strike missions north and south of the DMZ. Storage areas and railroad tracks, cars and sidings were targets in sweeps around Thanh Hoa. In the Vinh area, bridges, a surface-to-air missile launcher and a truck park were heavily damaged or destroyed, as well as warehouses, barges, piers and watercraft. A petroleum supply pipeline was cut. Guided bombs were also dropped near Vinh, destroying highway and railroad bridges. As CVW-11 pilots hit the Hai Yen naval base,

While Kitty Hawk planes fly their missions, Roy D. Phillips does his share in team effort as he sets fuze in 500-pound bomb under wing of A-6.

coastal transshipment points and the Vinh petroleum storage area, they encountered surface-to-air missiles and heavy antiaircraft artillery fire. Navy planes from *Kitty Hawk* also scored strikes on the Huong Khe army supply depot near Vinh and a railroad yard near Hanoi.

CVW-11 aircraft not only combined to hit enemy targets in North Vietnam near four of its key cities, Dong Hoi, Vinh, Haiphong and Hanoi, but also swept the areas around Quang Tri and Hue south of the DMZ, inflicting heavy damage.

The newest version of Navy's *Walleye* guided bomb, dubbed *Fat Albert,* scored "all good hits" in its first operational use against North Vietnamese targets. Captain Marland W. Townsend, commanding officer of *Kitty Hawk,* commented on the enthusiasm of carrier pilots over the results of the first six released, "You can't beat 100 percent." *Walleye* is directed to the target by an electronic visual guidance system. Once the target aim point is "seen" by the system, the bomb is released and automatically guided to target without further inputs from aircraft. This insures more effective damage with fewer bombs and reduces damage to surrounding areas which are not military targets. *Fat Albert's* advantage over earlier *Walleyes* is the ability to hit targets accurately from higher altitudes, a popular feature with combat aircrews exposed to enemy ground fire.

Kitty Hawk aircraft used two *Fat Alberts* to destroy a coastal defense site located in a cave and a major rail link between Hanoi and the major rail line running along Highway One.

It was a hazy day when Commander Darrell "Bud" Owens, X.O. of VA-192, was downed by two SAM missiles. They were not direct hits, but the explosions were so close that shrapnel damaged the *Corsair's* port landing gear well and portions of the hydraulic system, causing loss of aircraft control. When Cdr. Owens ejected, the wind blast broke his right arm in five places, but this was his only injury. Seconds after he parachuted into the sea, he was rescued by a helicopter from HC-1 Det. 1, returning from a logistics hop. It had picked up the pilot's beeper and was right on the spot when he actually hit the sea. The pilot was later heard telling his rescue team where to meet him for a free case of beer.

PO3 Roy E. Phillips is currently assigned to VA-52 aboard this attack carrier. Together with others, he works long hours as part of the teamwork supporting the fighters and bombers in their daily combat missions. Working as an aviation ordnanceman, PO3 Phillips is a fuzing specialist, arming and disarming bombs, missiles and explosive devices for the A-6 *Intruder.*

PO3 Gig A. Landry is another member of the carrier team, a plane captain for a Navy A-7 *Intruder* attached to VA-195. He speaks for all the plane captains when he says, "They wake you up about an hour before flight quarters, which goes from five in the morning until 9:30 at night. Right now, I am on nights. We try to rotate the plane captains around so that all of them are not on days all the time." At night, plane captains work on different planes and also prepare aircraft for five-minute alerts. The night crew provides relief for the day crew and can assist with work during the night hours. "I relieve somebody else so they can get a three-hour early break, write letters, shower and relax a bit. If you don't get relieved at night, it tends to be a pretty long day." Each pitches in to do his share — and more.

Coral Sea (CVA-43)

As *Coral Sea* pilots hit enemy targets north of the demarcation line, supply buildings, storage areas, barges and watercraft, trucks, highway bridges and boxcars were damaged or destroyed, as well as a POL storage area, transshipment points, railroad cars, gun positions and a pumping station. An explosives storage area, railroad yards, a truck park and AAA positions received hits. The jets' targets ranged from Hanoi to Haiphong, Vinh and Dong Hoi. Three surface-to-air missile launchers were destroyed and 12 more damaged as Navy pilots hit SAM missile sites southeast of Hanoi.

Coral Sea, with CVW-15 embarked, was relieved by *America* and has returned to her home port of Alameda, Calif., after seven months in SE Asia.

Oriskany (CVA-34)

Oriskany began her seventh consecutive deployment to Southeast Asia on June 28 as her pilots flew missions in support of Republic of Vietnam troops in Military Regions One and Two. They hit enemy emplacements, bunkers, truck parks, vehicles, storage areas, gun and AAA positions.

In support of Operation *Lam Son 72*, they scored strikes on many enemy positions, tank, gun, weapon, and radar sites. CVA-34 planes also swept into North Vietnam, destroying four surface-to-air missile canisters, a 200-foot camouflaged supply barge, enemy vehicles, gun positions and a rocket launcher.

On *Oriskany's* 14th day of combat operations during her current deployment, Lt. H. T. Rittenour of VA-215 made the carrier's 175,000th arrested landing. He had just completed a tanker run in the Quang Tri area in support of Republic of Vietnam troops and knew the landing was coming up but "it's a good thing nobody told me I was it, or I probably would have boltered."

An unscheduled medical evacuation marked the first standdown day of *Oriskany's* current WestPac deployment. While the sound of a concert featuring the ship's talent filled the flight deck, one of her SH-3G's, piloted by Lt. Patrick H. Shepard, ferried a patient from the ammunition ship *Nitro* (AE-23) 77 miles to the carrier for a successful appendectomy.

Enterprise (CVAN-65)

Enterprise has on board CWO-2's Dennis D. Sheridan and Floyd L. McManus who wear a device not often seen in Naval Aviation — the dolphins of the submariner. This might make them seem to be out of place aboard the *Big E*, but the nuclear training they received as submariners is what brought them from subs to a carrier whose nuclear power plant requires the highest degree of professional care.

After *Enterprise* returned to her home port of Alameda, Calif., from her fifth deployment to WestPac, she showed off her best on a dependents cruise with an aerial demonstration by CVW-14 squadrons of the capabilities of the Navy's air arm. There were parade formation fly-bys, a helicopter rescue, an inflight refueling and supersonic passes by F-4J *Phantom II's*, as well as aircraft launches and recoveries. A total of 3,000 turned out for the day at sea, including 650 members of the neighborhood youth corps and summer opportunity programs.

Midway (CVA-41)

In ceremonies aboard *Midway* at Cubi Point, Rear Admiral John L. Butts, Jr., turned over command of Carrier Division One to Rear Admiral William R. Flanagan. RAdm. Butts departed to assume four commands at Pearl Harbor: the Hawaiian Sea Frontier, 14th ND, NB Pearl Harbor and Fleet Air Hawaii. RAdm. Flanagan came from the post of Regional Director, East Asia and Pacific Region, under the Assistant Secretary of Defense for International Security Affairs.

Flying through heavy antiaircraft artillery fire and four surface-to-air missiles, A-6's and A-7's from *Midway* hit highway and railroad bridges and railroad yards near Hai Doung. Other *Midway* pilots damaged box cars and "walked bombs down the road right on top" of a truck convoy. Many targets in the Vinh area were hit — the Hai Yen naval base, two army barracks, barges and watercraft plying the inland waterways. Petroleum products storage areas, AAA positions, a lumber yard, a coastal defense site and piers were left burning. *Midway* pilots rolled in on gunboats in the Song Ca River near Vinh and left one burning with four other secondary explosions.

A-6's, A-7's and F-4's combined forces for a concentrated attack on a truck park near Hanoi which left 40 trucks, three cranes and nine buses destroyed, and ignited a huge petro-

Aboard Constellation, Lt. T. K. Blonski (left), tells Lt. J. F. Anderson about downing two MiGs. Lt. Blonski and Lt. M. J. Connelly (right) were later awarded the Navy Cross (see page 5).

leum fire. Although they encountered heavy antiaircraft artillery fire and three surface-to-air missiles, none of the Navy planes were hit.

As *Midway's* planes flew in support of South Vietnamese troops, they hit mortar positions, enemy emplacements and bunkers. North of the demarcation line, large POL tanks, transshipment points, several airfield runways and a vehicle repair shop were targets. Bridges were dropped with both guided and conventional bombs. A thermal power plant northeast of Haiphong received many hits.

On one run, *Midway* pilots discovered and attacked a large group of enemy trucks parked in heavy foilage off the main highway 12 miles inland from the coast.

Midway pilot Commander Greg Wren, a squadron operations officer, described the destructive power of the *Fat Albert* he used on a railroad bridge south of Hanoi, "The weapon worked as advertised. It moved one end of that steel trestle railroad bridge 20 feet and twisted the entire bridge 90° from end to end. It was awesome.

Maj. Gen. Hollingsworth is briefed on Hancock's flight operations by Cdr. Ed Adamson, air boss. The general thanked ship's crew and men of the air wing for their support at An Loc.

Saratoga (CV-60)

Saratoga has been on Yankee Station since mid-April when she deployed from the Atlantic on short notice to bolster Navy's concerted efforts in Southeast Asia.

As *Sara's* pilots attacked the enemy's supply and transportation facilities, they bombed bridges, railroads, storage areas and supply buildings. Bombs were reported on target at the Phuc Nhac military supply center, several transshipment points, an airfield under construction and a coastal enemy defense site near Vinh. Petroleum products storage areas, a military barracks complex and a SAM missile assembly area were damaged, and another assembly area was destroyed. Guided bombs were used to destroy railroad bridges near Thanh Hoa.

Two *Saratoga* Oceana-based F-4's under the control of an air intercept controller from USS *Biddle* (DLG-34) downed a MiG-21 over North Vietnam. As Chief Radarman Robert Bump directed the F-4's to their station, he spotted two blips on his radarscope. He directed the *Phantoms* into position to intercept the enemy jets before they could press home their attack, and the Navy pilots maneuvered to fire their air-to-air missiles. One chute was reported as the North Vietnamese pilot ejected and the remaining MiG fled. The successful intercept was the third time Navy planes under Chief Radarman Bump's control have downed MiG's.

An all-out effort by CVW-3 pilots resulted in heavy damage to enemy supply and transportation systems in North Vietnam—storage areas, trucks, bridges, AAA sites, boxcars and other railroad facilities, petroleum products storage areas, warehouse complexes, port facilities, and military and vehicle maintenance areas. A number of coastal defense sites were leveled by guided bombs.

During a strike mission, Lt. Edward L. Bishop, a CVW-3 pilot, had the assignment of hitting an enemy gun 12 miles northeast of Vinh that was rolled on a platform in and out of a cave at the foot of a mountain. At the first sign of an approaching plane, North Vietnamese gunners would roll the gun back inside until the plane had passed. With no gun in evidence to serve as an aim point, Lt. Bishop used his guided bomb to accomplish his mission, but in a different way. The bomb sealed the cave.

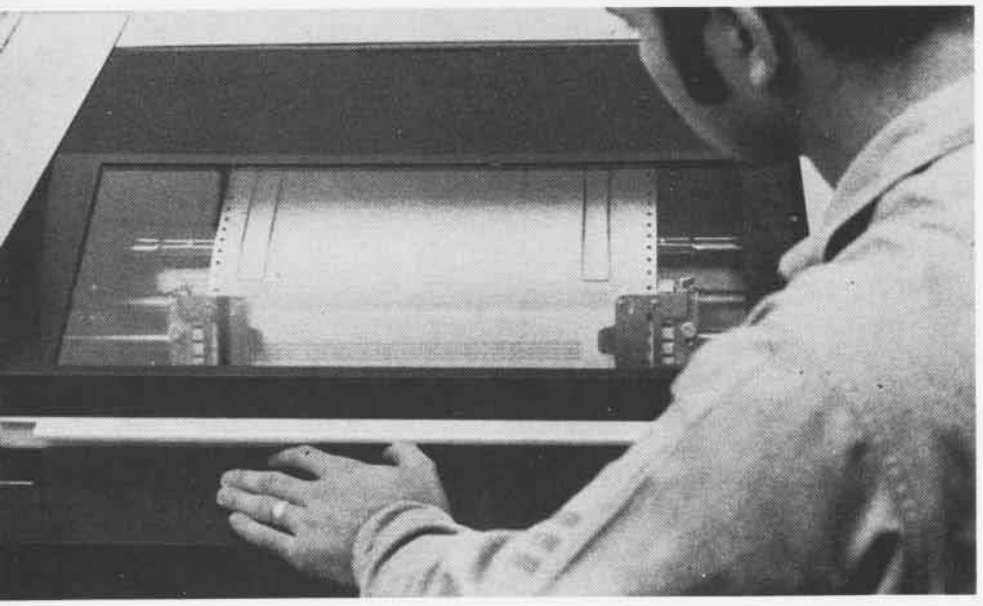
As *Saratoga* steamed through Pacific waters pursuing her combat mission, her men were still being given the opportunity to advance their education. Seven college-level courses were offered in cooperation with Florida's Jacksonville University, with four of the university's professors on board to teach the courses. They kept a busy schedule which filled *Sara's* training-hall classroom ten and a half hours each day, six days a week. Through the carrier's participation in the Navy's Program for Afloat College Education (PACE), 154 students in seven specialties — the "Class of '72" — have graduated. College credits earned through PACE are transferable to any other accredited college as long as the grade received is a C (average).

Airman Ike Issac, one of *Sara's Corsair II* plane captains, like his counterparts on *Sara* and her sister carriers, is an integral member of the team effort. The effort that keeps our planes operating at top efficiency. During an average day, Ike's plane may fly four separate missions. He admits that the responsibility for an aircraft worth millions of dollars is not something you carry lightly but he asserts, "It's the only way to go. I wouldn't want to do anything else."

A coupled slide projector and tape recorder permit the student to see and hear problems and solutions. The headset prevents his lesson from distracting other students, left. Punch cards are fed into computer hookup and sent by direct line to computer at Memphis State; results return within a quarter hour below.

CMI

By JO1 W. H. Maisenhelder
Photos by PH3 Michael Diehl



A student's test scores and background are fed into a computer. Within minutes, a course of instruction comes back that is geared to his ability and paced to his speed.

Computer Managed Instruction (CMI) is the method used at the Naval Air Technical Training Center at NAS Memphis, Tenn. A direct line to the computer at Memphis State University is the instrument of its success.

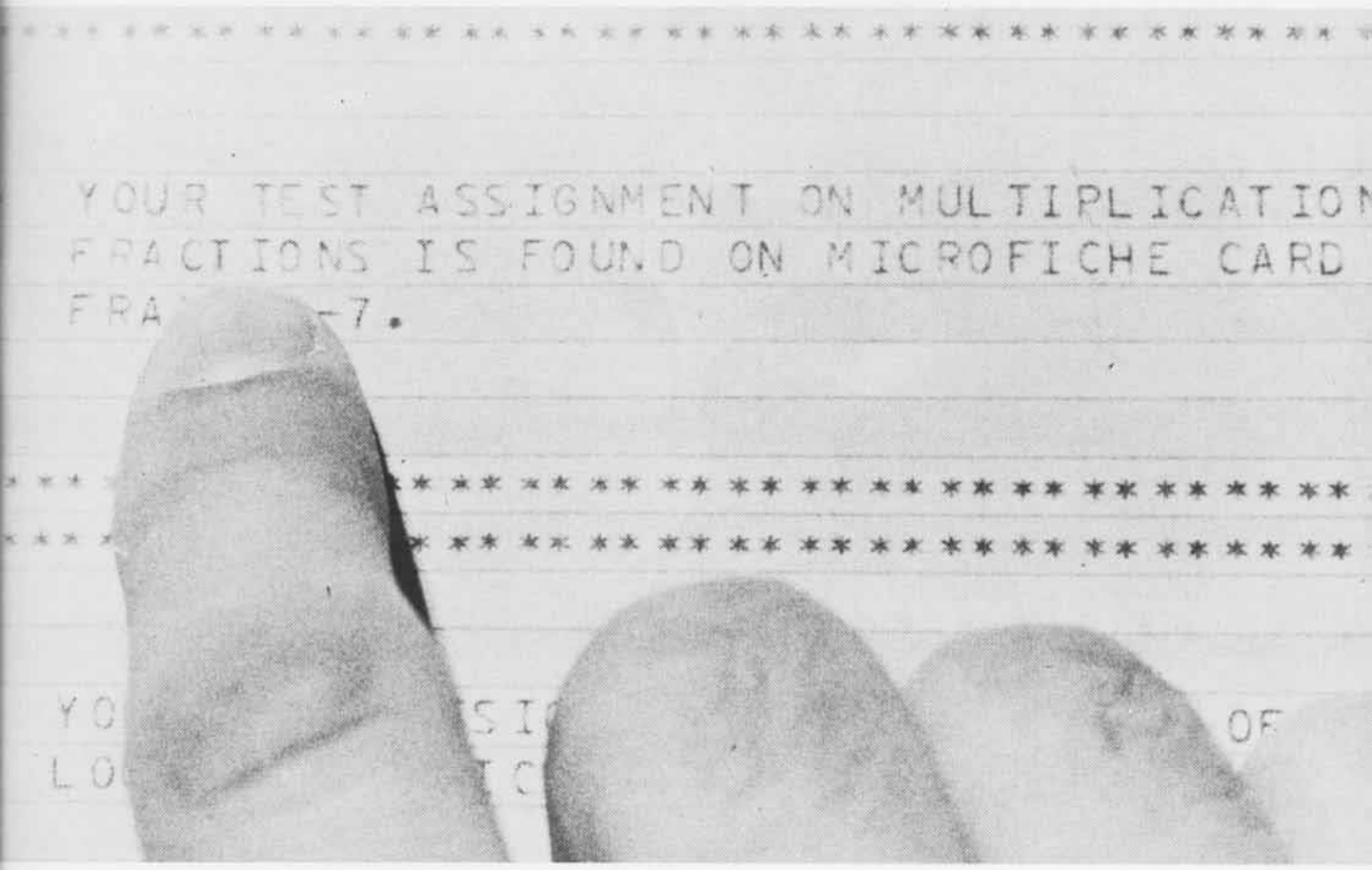
The Navy's CMI project is under the overall control of CNTechTra and under the direction of the Navy Training Research Laboratory in San Diego, Calif. Educators at Ohio State University, Vanderbilt University and the University of Tennessee supervise Navy Memphis operations.

To date, aviation mechanical fundamentals is the only course taught through CMI. It is possible, however, that many other courses at the center could be taught by this method in the not too distant future.

Basically, the student is taught through modules—lessons or series of lessons. The project normally calls for modules of instruction at three levels of difficulty. Most are designed to take from 15 minutes to two hours to complete.

At the beginning of each module, the student has the opportunity to move upward or downward to a different difficulty level. The harder modules are shorter and take less time to complete. If the student does well in the more difficult one, he may skip some of the easier modules depending on his experience and ability.

As the student completes each module, his results are put on a punch

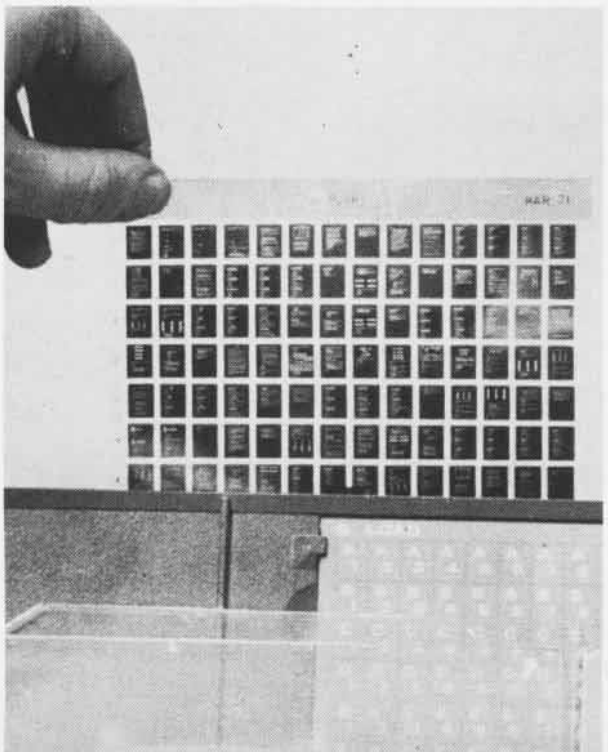


card and fed with other cards into the computer. Within 15 minutes, a typed sheet is returned with a readout on his accomplishment. The computer congratulates him and moves him to a new module if he made no errors, or he is told where he has erred and directed to modules where he can study further.

Since the course inception in July 1967, the project has progressed to a point where it is believed that it can be programmed to cut many course lengths by as much as 50 percent. It has already done this for aviation mechanical fundamentals, a source course for the basic courses of eight different schools.

Though still in its infancy, the program demonstrates that a course of instruction geared to the individual—making the most of his background, experience and ability—and permitting him to learn at his own speed, is not just a dream for the future. It is firmly within the grasp of Navy technology.

Instead of a grade, the student receives a detailed analysis of his mistakes and information on the right answers. Microfiche card below contains 98 pages of information on a grid for reference.



Accident-Free Flying

PHC Ron Oliver

Ask any pilot in Air Antisubmarine Squadron 33 and he will tell you that his S-2E *Tracker* could not be in better hands. He can speak in complete confidence, because in the past 11 years the pilots of VS-33 have flown some 68,000 hours without an accident.

The reason is quite simple — safety.

"Safety is really 90 percent maintenance," says Commander W. D. Bodensteiner, commanding officer of the San Diego-based squadron. "Trained pilots know how to fly safely, but without proper maintenance it doesn't matter how careful one might be in the air."

The record shows that his philosophy is shared by the entire crew.

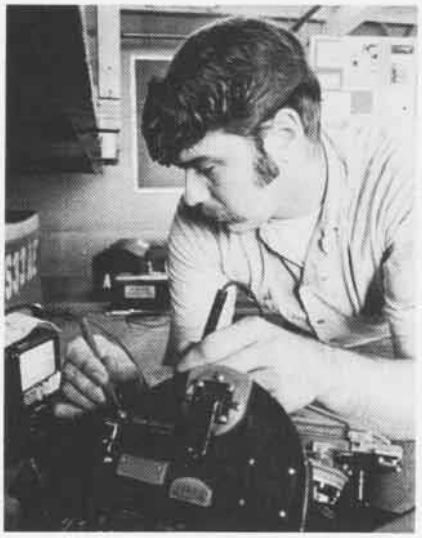
Lt. R. C. Wolter, the unit's safety officer, is an energetic man who keeps communication lines open between his office and squadron personnel. His direct pipeline to the commanding officer offers a free exchange of thoughts and ideas among personnel. It is also a major factor in the safety record.

Another prime factor is the pride and seriousness with which VS-33 crewmen view their maintenance and safety program.

"Good maintenance starts with the man who turns the first nut," explains ADCS T. R. Smith, maintenance control chief, "and it ends with the man who makes the final inspection."

Eleven years of accident-free flying makes that a very valid statement.

PHC Ron Oliver



A VS-33 quality assurance inspector watches a mechanic make final adjustments on completed job, left. AT3 Tim Drake uses a multimeter to check electronic circuits, above. Squadron skipper, Cdr. W. D. Bodensteiner, briefs pilots before a morning launch, below.

PHCS V. O. McColley

A Yank in the Queen's

A little over one year ago, CNO introduced Z-gram 100 heralding the establishment of the Personnel Exchange Program (PEP).

The new program provides junior officers and enlisted members of the U.S. Navy with the opportunity to serve a tour with one of the navies of our allies as well as interservice exchanges with the U.S. Army, Air Force and Coast Guard.

As stated by CNO, the purpose of PEP is to provide interesting and challenging foreign shore duty for Navy personnel and to foster a better understanding and appreciation of our allies. It also allows the host nation to become acquainted with the U.S. through personal contact.

Those selected for the program normally serve a two-year tour as working members of a foreign unit.

Story and Photos by
PH1 Bob Woods

"We have a problem in the United States Navy with tools," claims ADJC Neil C. Hyerstay as he explains how accidents can happen if a mechanic leaves tools adrift in aircraft engines.

The American CPO, stationed in Great Britain under PEP, is attached to the Royal Naval Air Station, Culdrose, near Helston. His British counterpart is serving a tour of duty with the U.S. Navy.

"The most impressive thing I have encountered here about Royal Naval Aviation is the tool control program," Hyerstay says. "Each aircraft is assigned a complete tool box. When a mechanic wants to fix something, he has to check out the complete box.

"When he does this, no matter what he is going to repair, the aircraft is automatically grounded until the tool box is returned and every tool is accounted for.

"If a tool is missing, the aircraft remains in a down status until it is found, even if this means searching every inch of the aircraft. If it is not found, then it is up to the senior engineering officer to say whether the aircraft will remain down or whether it can resume operations."

The chief thinks this is an outstanding program because it ensures the accountability of the tools and helps prevent accidents.

"I would like to see a program such as this one in the U.S. Navy," he says.

Hyerstay is not assigned to any one operational air squadron, but works in the jet engine repair shop of the air station's air engineering department. If an engine needs extensive work or has the required number of hours for an overhaul, it is sent to his shop.

With ten years' experience on *Sea*

Chief Hyerstay repairs a helicopter engine in the repair shop at RNAS Culdrose, left. Portion of the tool box issued each aircraft is in the foreground. Above, the chief and Royal Navy Petty Officer Trevor Brown check a Sea King engine. Opposite, Neil and Kathy joke with Mr. Pascoe, a Helston butcher, above, and stroll through one of the many fishing villages that dot the Cornish coast, below.

Navy

Kings (the same type used by the Royal Navy), he is often called to a squadron to render assistance.

Chief Hyerstay explains the difference between a U.S. Navy chief petty officer and his counterpart in the Royal Navy: in the British Navy, the CPO does almost all the technical repair and overhaul work on the engines; in the U.S. Navy he does more administrative work and fewer maintenance jobs.

At the air station, once the home of all the Royal Navy's helicopters, Hyerstay is one of two chief petty officers in the engine shop where at least 20 other British ratings work on jet helicopter engines. The base now houses the Royal Navy's antisubmarine warfare helicopters and is the basic training base for all helo pilots.

"When I first arrived here, I was sent to a one-week school to learn how to sign my name on official papers," he says. "It might sound funny, but not everyone has the authority to sign forms stating that an engine is all right and that it has been repaired correctly."

Upon completion of the school, the 17-year Navy veteran was presented a special certificate of completion which read: "This is to certify that on or about the 27th of January 1972, ADJC Neil C. Hyerstay, USN, became the first of our transAtlantic cousins to leave the halls of the Engineering School at RNAS Culdrose in a state of unbelievable bewilderment — but qualified to sign almost anything."

Not all the chief's time is spent in the engine shop. Whenever he gets the chance he goes fishing. He keeps a rod and reel in his car at all times and needs little coaxing to use it.

Fishing is not his only hobby. He holds a commercial single-engine pilot's license and goes flying when he gets the chance. He is also learning to soar gliders at the station's glider club and enjoys building and flying model airplanes.

The chief and his wife, Kathy, live with their two children in Royal Navy married quarters in Helston, Cornwall, a resort area in the southwestern corner of England.

NAVAL AVIATION NEWS

NavAirSysCom Honored

WASHINGTON, D. C. — The Naval Air Systems Command has received the Daedalian Weapons Systems Award for the development of the F-4 *Phantom*. The trophy and plaque were presented in June at the annual awards dinner at the 1972 national convention of the Order of Daedalians, a national fraternity of military pilots. Representing NavAirSysCom at the presentation held at Wright-Patterson Air Force Base, Ohio, were Rear Admiral Edward L. Feightner, Assistant Commander for Logistics and Fleet Support, and Captain James T. Timidaiski and Mr. James W. Johnstone, F-4 project manager and deputy.

General F. H. Smith, Jr., USAF (Ret.), presented the award, pointing out that more than 4,200 F-4/RF-4 aircraft have been delivered by McDonnell Douglas under 14 different model designations — to eight foreign countries in addition to the U.S. Navy, Air Force and Marine Corps.

The all-weather jet fighter first flew in 1958, became operational in 1961 and subsequently established 15 world speed, altitude and time-to-climb records. The *Phantom* has established an outstanding combat record in Vietnam.

Field Named for McCutcheon

NEW RIVER, N.C. — MCAS New River was named McCutcheon Field on June 8 in honor of the late General Keith B. McCutcheon, who is considered the father of Marine Corps helicopter aviation.

As a lieutenant colonel in 1950, Gen. McCutcheon commanded HMX-1, at that time the Corps' only helicopter squadron and the one which served as a focal point for the expansion of the Marine Corps helicopter program.

With the outbreak of hostilities in Korea, Gen. McCutcheon commanded Marine Helicopter Transport Squadron 161 and then reported to the U.S. European Command in Germany where he served until 1954. From 1957 to 1959 he commanded MAG-26.

Following an assignment in Washington, D.C., he took command of the 1st Marine Brigade in Hawaii, then joined the staff of CinCPac. He later served as commanding general of the 1st Marine Aircraft Wing and deputy commander of the 3rd Marine Amphibious Force in Vietnam. His next assignment was at Marine Corps Headquarters. In 1970, he returned to Vietnam — as commanding officer, 3rd Marine Amphibious Force.

At the time of his retirement, Gen. McCutcheon was serving as a special assistant to the Commandant of the Marine Corps.

NFO's Take Command

WASHINGTON, D.C. — The first two nonpilots to command Navy fighter squadrons assumed their duties recently. Naval Flight Officers Commander Gayle Elie and Commander Fred Staudenmayer assumed command of VF-21 at NAS Miramar, Calif., and VF-33 at NAS Oceana, Va., respectively, in June. Both are F-4 radar intercept officers.

Until two years ago, the law required that pilots be assigned as squadron C.O.'s. Since then, NFO's have been given command of two attack squadrons, and Bureau of Personnel officials say others will be given squadron commands in the future.

VF-33 has won the battle efficiency E for the past three award years, the first Atlantic Fleet fighter squadron to compile this record of excellence.

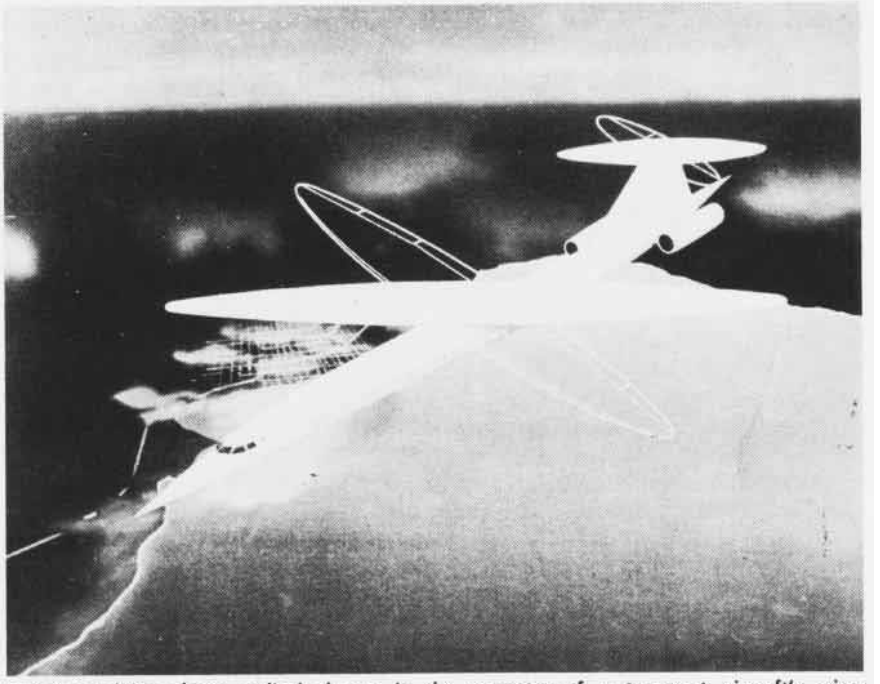
Radical Design Idea

WASHINGTON, D.C. — A radical change in the basic geometry of an aircraft wing might, according to preliminary NASA theoretical and test predictions, allow future jet transports to operate quietly and efficiently at both takeoff and supersonic speeds.

Dr. R. T. Jones of NASA's Ames Research Center, is suggesting that an anti-symmetrical wing, pivoting on its center point, may be the way to achieve supersonic transport capability without the penalties of high fuel consumption and noise.

Dr. Jones points out that it is interesting, and probably important, that mathematical theory indicates a completely different kind of symmetry for supersonic aircraft.

A senior staff scientist at Ames, Dr. Jones is credited with the development in 1945 of sweptwing theories which were instrumental in advancing aircraft speeds into the transonic and supersonic ranges. Most jet transports



Artist's rendition shows radical change in the geometry of a transport aircraft's wing.

now in use are based on his aerodynamic theories and on his work with slender delta wings.

The new design has a conventional straight wing which will be at right angles to the fuselage during takeoff on medium length runways. An aircraft in this configuration would require only about one-fourth the takeoff energy now needed by comparable delta wing jet transports with similar payloads.

As the conceptual aircraft reaches the speed and altitude where swept wings would be efficient, the entire wing would rotate about 45 degrees so the wing on one side would point more in the direction of flight and the other half would trail toward the rear.

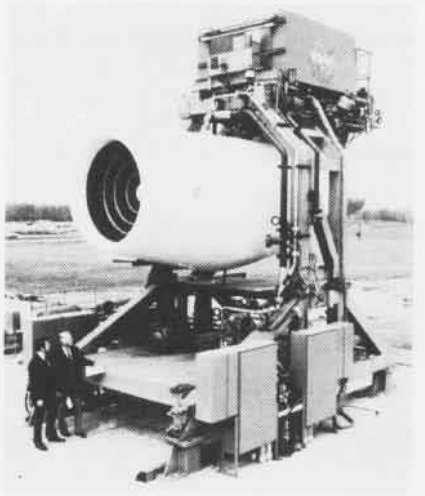
Studies indicate that cruising in this configuration at supersonic speeds up to about Mach 1.2 would not produce a sonic boom on the ground and could be accomplished with nearly the same fuel economy per passenger mile as current jet aircraft traveling at subsonic speeds. Over ocean areas where sonic effects are not detrimental, the conceptual aircraft could cruise up to Mach 1.5.

If current testing, computational prediction and further research verify the promise of the new design, the anti-symmetrical wing concept would open the door to development of a more commercially efficient, ecologically acceptable jet transport for the nation's future needs.

Project Stormfury on the Alert

MIAMI, Fla. — With their sights trained on taming a hurricane this year, more than a dozen U.S. weather reconnaissance aircraft and 250 crewmen and scientists are poised for 1972's Project *Stormfury*, a Department of Commerce/Department of Defense experiment involving the silver iodide seeding of hurricanes in an effort to reduce their destructive force. All they need is a high speed hurricane of the "grown up" variety.

"Our computer analysis and previous experiments indicate we may be able to reduce the hurricane's energy as much as 15 percent," notes Dr. Cecil Gentry, head of the National Hurricane Research Laboratory near Miami and director of the project. "A reduction of 15 percent in a 100-knot hurricane could mean that property damage might be reduced 30 percent, in addition to the lives saved."



This 22,000-lb. thrust experimental quiet engine, developed by NASA's Lewis Research Center, Cleveland, is quieter than any engine in use on commercial jets. Test engine is housed in nacelle lined with special acoustic treatment to dampen sound, especially the higher frequencies which irritate people.

Key aircraft in Project *Stormfury* are four WP-3A *Orions* of VW-4, four WC-130 *Hercules* of the Air Force's 53rd Weather Recon Squadron and one *Hercules* of the National Oceanic and Atmospheric Administration, the Commerce Department agency in charge of the National Hurricane Research Laboratory. For the experiments, they are operating from NAS Roosevelt Roads, NAS Jacksonville and Ramey AFB.

In last year's experiment, Navy A-6's and Air Force WC-130's seeded Hurricane *Ginger* 250 miles southwest of Bermuda with about 250 pounds of silver iodide crystals before it struck the Atlantic Coast. There were changes in the hurricane's cloud structure, notes Dr. Gentry, but the structure of *Ginger* was such that it was not suitable for large scale modification.

When *Debbie*, 1969's experiment, was seeded, its winds decreased 15 to 30 percent. *Debbie* was seeded five times in an eight-hour period.

"After seeding three or four more hurricanes, and if all the results are favorable, we may have enough data and expertise to make this program operational," Dr. Gentry says.

S-2G Introduced

WASHINGTON, D.C. — As the Navy prepares for the fleet introduction of the S-3A in 1974, an interim aircraft, the S-2G *Tracker*, will provide the Navy's first line, carrier-based, fixed-wing antisubmarine warfare capability for CVS and CV carriers.

An improved design of the S-2E, the S-2G will operate from fleet carriers for about two years after the introduction of the *Viking*. The S-2G will thereafter give reserve units the latest sonobuoy sensors. Funding has been approved for 50 of the new *Trackers*, allowing for an air group on each coast. Ten S-2G's are planned for use as pipeline and training aircraft.

The key modification to the S-2G is the installation of AN/AQA-7 DIFAR processing equipment used in the P-3 *Orion*. The S-2G will be able to process both SSQ-53 DIFAR sonobuoy and command activated (CASS) SSQ-50 sonobuoy information. Noteworthy items concerning the S-2G configuration are:

A compact DIFAR gram display;

the Navy's first production lightweight DIFAR sonobuoy receiver (AN/ARR-75); the Navy's first production acoustic recorder capable of recording the entire DIFAR signal on one track (AN AQH-5(V)); three P-3C-type cartridge actuated device sonobuoy dispensers for additional stores capability; installation of Aero-1B smoke marker retro-ejector for more accurate magnetic tracking of submarines; a triple function antenna for IFF, CASS, and *Bullpup* missile control; and a minimal 200-pound weight increase

The Baltimore Division of the Martin-Marietta Corporation has the contract for the S-2G prototype and follow-on production modification kits. A drive-in modification at the Quonset Point Rework Facility has provided CVSG-56, embarked aboard USS *Intrepid* (CVS-11), with 21 of the new *Trackers*.

YEAR OF THE CARRIER

SARATOGA

REVISITED

By RAdm. J. R. Tate, USN (Ret.)

Last year I was invited to participate in USS Saratoga's dependents cruise. It seemed to offer a good opportunity to compare air operations on the new *Sara* with those on the old *Sara* (CV-3).

Time of departure was set for 0900. A day or so before the operation, without explanation, this was set up to 0800. Well — nothing new there!

As I boarded, I looked forward and aft, thinking, "She is big, really big," and I had thought CV-3 was tremendous. The next impression was one of "no portholes." *Sara*, the first, had very sketchy air conditioning and portholes were everywhere. When I got up to the CAG's room, it was hot and many apologies were rendered, "The air conditioning is not operating." Oh well, again, nothing new.

As we got underway and stood out of Mayport on a beautiful sunshiny day, convoyed by a raft of tugs, I stood on the bridge and my mind went back to the first time I did this on the old *Sara* at San Diego. First, there had been an hour and fifteen minute ride from the dock to the ship at anchor. *Sara* was too big to get into San Diego harbor, so she had to anchor outside of Point Loma. She had been attended by the old WW I minesweeper, USS *Gannett*.

I looked around the bridge of CV-60. It was air conditioned and it was working. The difficulty was not with the equipment but with Mayport, — not enough current. Boy, an air-conditioned bridge! As I wandered about, I remarked to one officer that the flag plot was not much better than the old *Sara's*. I was surprised when he told me, "We don't control from here. That is all done from CIC."

The first *Sara* had had no CIC and no radar. She had a small cubbyhole in the island which was the office of a lieutenant who was assigned as air information officer. All his information came by mail and he didn't even have a phone. His job was to advise the air officer and the squadron commanders. LCdr. Frank M. Maile once tried to sell me this job with the come-on, "Someday this will be a really big job and you will have room for plotting boards, three or four men, and be on the sound-powered phones to the bridge." When I saw CIC, I could only think, "What an understatement."

On the old *Sara*, the air boss was head of all the air departments, the squadrons and air operations. As Commander Joe Stanley, air operations officer on the staff of ComCarDivSix, introduced me to another officer who was the surface operations officer, I began to get a little confused.

I stood on the flag bridge as the launch started. Again my mind dropped into the past. We had had no carrier divisions nor carrier division commanders. Commander, Air Squadrons was a passed-over captain who was not an aviator and who had little idea what the planes could or could not do. As one aviator once remarked, "He fears the improbable and expects the impossible." Today the ComCarDiv is a pilot who knows all the details of an operation and has all the answers at his fingertips. We have come a long way in 40 years.

As the planes were spotted on the catapults, I could only compare the F2B's, the O2U's and the T4M's of the old *Sara* with these behemoths. On CV-3, we never catapulted. The fighters were always spotted forward with the squadron commander in the No. 1 spot. It was called the "fall off spot." There were no brakes on the planes. The first plane was secured to the deck by a wire with a bomb release hooked to a ring on the landing gear. When the launch officer was sure he had 30 knots over the deck and the pilot was sure he had full power, the signal was given to pull the bomb release. Theoretically, the plane reached flying speed ten feet *beyond* the forward end of the deck!

As I watched the flame deflectors come up and the afterburners come in and heard the swish of the steam catapult as it easily tossed these giants in the air, I could only think, "What a wonderful way to start a flight."

One catapult launched, then the other fired, and suddenly, with a roar, a third plane flashed by the bridge from aft and I realized that there was another slingshot back there. The flyoffs were pretty much routine, but what a show of brute power we received as the jets roared by in afterburner. A *Vigilante* flew past and broke the sound barrier with a loud bang. It was followed by two F-4's at well above Mach 1. Old *Sara* never had any birds like this.

The fire show was impressive. Part of it was the release of three para-

CV-3 launches its aircraft. Note short takeoff roll for forward aircraft. On the opposite page, Saratoga is tied up at NS Mayport.

Skyhawk leaves CV-60's waist catapult as other aircraft wait their turn. CV-60 perpetuates CV-3's distinguishing vertical black stripe on funnel.

chute flares upwind of the ship. *Phantom II's* made a *Sidewinder* firing run, — two hits and one near miss. The last flare drifted back toward the ship. It looked as though it might land in the planes parked aft. Then, out of nowhere roared a yellow fire engine — to stand by. The flare luckily passed over and landed in the water. The *Sara* I remember would have only had a fire hose or maybe a Pyrene there.

As the planes were recalled and started to land, several comparisons came to mind. The original *Sara* had seven crossdeck pennants and three barriers. The new *Sara*, with no barriers and only four crossdeck wires, looked bare and hardly ready. The old Norden gear, after a runout, required 25 to 30 seconds for the electric motors to retrieve and reset. Now they come back with a snap. The crossdeck pennants of today are tremendous compared to the puny little wires we used to have. Today's tail hooks are unbelievable, but the old tail hook man is still there to give the signal that the wire is clear. Incidentally, in the old days, the hook bit the wire with only an 8,000-pound pull.

I talked to one of the hook men and learned that the job carries "hazardous duty pay." It should. However, I noted that now the hook throws the wire after retardation. Used to be the hook man often had to kick it loose. The tricycle landing gear seems to make the difference.

The LSO's duties and problems on the new *Sara* are somewhat different from the old days. With the mirror landing aid, radar, speed reading, etc., things appear simplified. Used to be the LSO had to judge the approach speed by how high the horizontal tail surfaces were above the wing. The LSO was notified by his talker of the name of each approaching pilot — he knew each pilot's particular type of flying and his capabilities.

As I walked about the flight deck, I marvelled at the steel armored deck which has replaced the teak decks of old. And the deck handling equipment! In the old days, it was "push 'em forward and push 'em back," all by sheer manpower. It was man killing. Now it is done with precision and ease.

As I watched the plane directors, ordnancemen, etc., in the varicolored helmets and jerseys, my mind went back to the time Commander Ken Whiting, exec of the first *Saratoga*, decreed that the flight deck crew be so equipped. The rule was criticized then as an aviation fancy in the same class as brown shoes. "Turret crews all wear dungarees and the leaders and pointers are all the same. Why should aviation personnel be different?"

Wandering through the passageways, I saw pictures of various officers who had served aboard. There was one of Bat Cruise who served on both the old and new *Sara*. I wonder how many did that? And in the CAG stateroom I found a closed circuit television where you can watch each landing displayed with all the pertinent information.

Yes, in 42 years, *Saratoga* has grown up and learned a lot of new tricks, but I can hardly wait to see *Nimitz*.

Letters

Tell it to the Marines

In the June issue of *Naval Aviation News*, page five, you announced the demise of the UH-34D from the Marine Corps *active* inventory with the departure of Buno 147161 to the Marine Corps Air Museum in March.

The fact is, that while 161 *was* retired to the museum, she effected a contact relief with VH-34D Buno 147191 prior to her departure.

One ninety one served previously with Headquarters Squadron, FMFPac, and now doubtless holds the distinction of being the only H-34 still on active duty.

It isn't often that we catch your fine publication in an error, however slight, but we did want to take this opportunity to clarify the status of an old and honored aircraft, and to let you know that there's still at least one alive and kicking.

J. E. Henshaw
Headquarters Squadron, FMFLant
Norfolk, Va. 23511

On page five of the June issue of *Naval Aviation News*, an item states that the last *active* UH-34D was flown to Quantico in March to take its place in the Marine Corps Air Museum.

HMM-776 is still flying the UH-34 and continues to use it in a tactical environment. On June 17, MARTD Glenview had six UH-34's assigned for the use of HMM-776. Transition to UH-1E's is under way and scheduled to be completed in early July.

Kenneth M. Scott
MARTD
NAS Glenview, Ill. 60026

Our source was the MCAS Cherry Point *Windsock* of March 24. The story was datelined Quantico.

To VFMA-312

For many years your fine magazine has been a popular item in ready rooms throughout the fleet. VF-84 is no exception.

However, the inside back cover of your May 72 issue has been a source of considerable controversy and heated debate. Before tempers wear too thin, we would appreciate a clarification of the lower left photo.

Within the squadron there are three schools of thought on what the two gents from VFMA-312 are actually up to.

1. They have just realized that they were sprinting madly towards the wrong side of their trusty *Phantom* and have applied max braking (anti-skid incorporated).

2. They were over-sprinting their focal points when they realized their error and (anti-skid not incorporated) have in fact ricocheted off the aircraft.

3. They are not attempting to board the aircraft at all. Rather, they are in the process of disembarking . . . a backward jump off the starboard intake (followed, maybe, by a couple of somersaults).

We are anxiously awaiting your explanation.

G. L. Riendeau
C.O., VF-84
FPO New York 09501

Wrong on all counts! A reliable Marine source informs us that the duo's flight suits conceal a red letter "S" emblazoned on their chests. At VMFA-312, the initiated cry "Up, up and away!" and leap into their cockpits in a single bound.

Tomcat

In view of recent events, I thought your readers might be interested in the following letter.

F. N. Howe, Capt., USN (Ret.)
608 Timberland Trail
Virginia Beach, Va. 23452

USS Duxbury Bay (AVP-38)
Fleet Post Office
San Francisco, Calif.

9 April 1946

Naval Aviation News
Bureau of Aeronautics
Navy Department
Washington (25), D.C.

Sirs:

It is suggested that a good name for the yet unnamed F2G would be "Tom Cat," to go along with all the other "Cats" that have made Navy fighter history.

Sincerely yours,
F. N. Howe
Commander, U.S. Navy
USS Duxbury Bay (AVP-38)

Black Cats

On page 34 of the *American Aviation Historical Society Journal*, Spring 1971, is an article that makes reference to certain *Black Cat* campaign operations in the Solomons and New Guinea area in 1942-43. The campaign operations were written by Adrian Van Wyen, then of the Office of Naval History.

May we purchase a copy that described these operations?

Knuppe Development Co., Inc.
Herbert A. Nelson
21715 Redwood Road
Castro Valley, Calif. 94546

Referenced "Note on Black Cats" was quoted in its entirety (*NANews*, June 1972). Further detailed unit records, including a history of FAW-17 may be obtained by writing to Operational Archives, Naval History Division, Washington Navy Yard, Washington, D. C. 20390.

TBY

I read with great interest LCdr. J. A. Williams' letter in the April 1972 issue regarding the Tare Baker Yoke (TBY-2).

I was in the squadron he referred to. As far as I know, it was the first and only TBY squadron. We had the first 26 aircraft that came from the factory. Cdr. George Gay of Torpedo 8 fame was our commanding officer. (He is now one of TWA's senior international pilots.) Lt. Tom Kennedy was X.O.

I received orders on June 12, 1945, to report to VT-154 for the fitting out of the squadron. These were modified on August 5, 1945, changing the designation to VT-155. My first flight in the aircraft was on June 21, 1945 (Buno 30348).

The technical information in the last paragraph of LCdr. Williams' letter is essentially correct, as I remember. However, the plane was capable of carrying two torpedoes externally or a rather wide variety of ordnance.

One of its most unusual features was a master flight control lever. It was located outboard of the throttle quadrant. There were two positions, "flight" and "land." When the land position was selected, a number of things all happened at once: the wheels went down, flaps were lowered, slats were extended, mixture went to rich, prop went to low pitch and the cowl flaps opened. It was quite an experience the first time one tried it.

One problem we did have was with the brakes. This, plus the normal bugs in a new plane, kept the Consolidated tech rep quite busy. It also had a number of electrical problems.

I have a picture of the plane taken from the handbook.

It would be interesting to hear if there are a few more TBY pilots among your readers.

Mark O. Shriver, Capt., USNR-R
Chief Staff Officer, NARS-V1
NAS Glenview

TBY-2

I can add a few facts about the TBY *Sea Wolf* mentioned in LCdr. Williams' April letter. The plane, a Chance Vought Aircraft design, first flew in 1941 as the XTBU-1. Because Vought was busy building the OS2U *Kingfisher* and F4U *Corsair* during the war, production was assigned to Convair which built 182 of the TBY-2's. The original XTBU-1 was without the radome shown in the *NANews* photo.

A short wartime release on the plane said it weighed eight tons and carried a crew of four: pilot, gunner, radioman and bomber. It was built at a new factory at Allentown, Pa. Vought had received a letter of intent from the Navy in 1942 for 1,100 of the planes but manufacture was transferred to Consolidated Vultee.

Arthur L. Schoeni
Vought Aeronautics Company
Box 5907
Dallas, Texas 75222

PV-2 Harpoon Squadrons

During the later part of WW II, I was an aircrewman (aviation ordnanceman) in a PV-2 *Harpoon* squadron, VPB-199. I am trying to locate a source for the history of the VPB's flying the PV-2. I have contacted Mr. Erik Miller of Lockheed and he has furnished much technical data and some photos, but he referred me to the Navy for further information. Could someone direct me to the proper source for the histories?

I have placed ads in several magazines attempting to contact members of PV-2 squadrons, but the only replies I had were from VPB-199 squadron mates, and they can't add much to what I have.

Charles L. Scrivner
116 Lacy Road
Independence, Mo. 64050

Anyone?

To complete ten consecutive volumes of *Naval Aviation News*, up to the present year, I need the issues of June and July 1964, which were not delivered to me.

As a member of the Aviation Historical Society of Australia, unit insignia are of particular interest to me and the remarkable variety of cloth insignia in established use with USN units is fascinating.

I would welcome any example of these cloth insignias as a personal documentation of USN history.

J. A. Vella
Aviation Historical Society of Australia
Australian Aircraft Restoration Group
52 Brisbane Street
Ascot Vale
Victoria 3032 Australia

June Cover

On the front cover of the June issue of *Naval Aviation News* you show a picture of two A-7E's dropping their bombs "somewhere over South Vietnam." You can imagine my surprise when I checked in from leave and found my photo on the cover. At that time, the *Fast Photos* of RVAH-5 were embarked in USS *Enterprise*.

W. W. Watson, Lt.
Naval Aviation Schools Command

Overload?

In the letters section of the April 1972 issue, Chief D. R. Etier asks how the *Kitty Hawk* can get away with loading three MK 82 bombs on an AERO 12 C bomb skid ("The Smart and The Dumb," January 1972). We don't — and three can't be placed on one.

The picture was mislabeled. The three bombs pictured are 250-pound Mk 81's, making the total weight well under the limit for the skid.

L. D. Moats
Safety Officer
USS Kitty Hawk (CVA-63)

Naval Aviation Films

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

MN-10479E (unclassified) *A-6A Familiarization — Vertical Display Indicator — Search Radar Terrain Clearance.* Nature, use and limitations of the VDI in search radar terrain clearance (28 minutes).

MN-10479F (unclassified) *A-6A Familiarization — Inertial and Doppler Navigation Systems.* Theory and cockpit mechanics of the inertial and Doppler navigation systems in the A-6A (36 minutes).

MH-10588F (unclassified) *Marine Air Command and Control System—TAOC Information Flow—Part 1 and 2.* Reception and routing of radar information to operator's console (40 minutes).

MV-11165 (confidential) *Seek Silence.* (U) Situations and circumstances inexperienced and/or careless pilots and radio operators may encounter in the combat theater (24 minutes).

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

Navy has awarded McDonnell Douglas a contract for the purchase of five C-9B's plus spare part support. The new transport, depicted in this R. G. Smith painting, is a specially equipped, longer range version of the DC-9. The new version will be used for fleet logistic support.

SQUADRON INSIGNIA

HURRICANE HUNTERS

The Navy has been performing aerial hurricane reconnaissance since 1943 for the National Hurricane Center, Miami, Fla. Weather Reconnaissance Squadron Four, NAS Jacksonville, Fla., led by Commander Vincent J. Schuppert, provides warnings of approaching tropical storms and, during the winter season, of crippling snowstorms in the North Atlantic. The squadron has logged 70,000 consecutive accident-free flying hours, over 11,000 in actual hurricane reconnaissance. The Hurricane Hunters recently transitioned from the WC-121 Constellation to the WP-3A Orion.

NAVAL AVIATION
NEWS