

**NAVAL
AVIATION
NEWS**



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NAVAL AVIATION NEWS

SIXTIETH YEAR OF PUBLICATION

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COVERS — JOCS Bill Bearden of the NANews' staff filmed the F9C Sparrowhawk model. The replica was built from a kit (Cleveland Model and Supply Co.) by Roy McCallum and is on loan from the National Air and Space Museum to the U.S. Naval Museum in Washington, D. C. For more on the cover, see page 2. For more on models, see feature beginning on page 8. Back cover photo depicts A-7E Corsair IIs from VA-97 and VA-27 aboard Enterprise. Here, LCdr. Pete Mersky filmed carrier qualification sequence aboard USS Kennedy last spring off the coast of Florida.

editor's corner

Cover Story. When *NANews*' JOCS Bill Bearden filmed this month's front cover, his goal was to make the *Sparrowhawk* appear, at the viewer's first glance, like a real aircraft in the air. At second glance, it was O.K. if the reader recognized the F9C as the model it is. Initial attempts failed when a flagrant scratch carved its way north to south across the picture in the developing process. Next time around, Bearden and two staffers trekked out the back door of their Washington Navy Yard office and reconstructed the scene. Bearden clicked away, one gentleman held a square of white poster board just so, to reflect sunlight, and the third grasped the *Sparrowhawk*'s tail as far back as safety and manual dexterity would permit. The Anacostia River served as background. Voila, a cover!

Love 31, Love 33. No weird tennis score here. These young flyers are the Navy's first husband and wife light



airborne multi-purpose-system pilot team. Ltjg. Catherine M. Gehri flies in HSL-31. Hubby, Ltjg. Richard S. Gehri, works down the ramp at North Island's HSL-33.



Hairy Carrier. From the Art Schoeni scrapbook comes this 1949

view of an F4U-4 *Corsair* aboard USS *Sicily*. Note the quick-of-foot LSOs.

Classic Camouflage. The caption for this photograph, which appeared in General Electric's *Jet Service News*, reads: "Minor adjustments are accomplished on a VF-201 F-4 by ground maintenance personnel prior to an afternoon launch. The unusual camouflage scheme was effective in the air as well as on the ground." Lt. "Dirt" Thomas of the squadron, the man credited with the innovative color scheme, declared, "Great thinkers'

ideas are never accepted right off. They must be proven." The idea was hatched during a Cold Lake, Canada, deployment when Dirt and his mates observed the way our northern neighbors decorated their machines in sky-blending colors for air-to-air operations. AT2 Tom McFarlin, VF-201's corrosion control and paint detail leader, says the unit is now working on methods to camouflage engine smoke trails and after that



did you know?

T&E Hawkeye

The Naval Air Test Center's inventory has been increased by one E-2C *Hawkeye*, the only one assigned to Navy RDT&E. NATC previously had to borrow a *Hawkeye* from the fleet or Grumman Aerospace Corporation for each project. The Center will now be able to complete jobs more quickly and in a predictable time. It will be easier to support endeavors such as the F/A-18 project on an as-needed basis without major negotiation or coordination.

The new addition has a busy schedule since the *Hawkeye* is beginning a series of modifications to keep it up to date through the end of this century. Updating



includes changes to the communications system, expansion of central computer memory capacity and major modifications to the radar antenna. Several of the changes will require evaluation. More than 2,400 pounds of instrumentation, including 19 miles of cable, will be put into the 55-foot aircraft.

Measuring Technique

The Naval Air Development Center, Warminster, Pa., has developed a technique for measuring hydrogen embrittlement in high strength steel. Rockwell International Science Center is building the portable electrochemical measuring device. The first of three prototypes of the device is being evaluated by a McDonnell Douglas subcontractor as part of the quality control process during production of the F/A-18 landing gear. The aim is to determine the hydrogen concentration after cadmium plating. The other two prototypes will undergo extensive performance evaluation at NADC and a NARF.

Hydrogen introduced into high strength steels by corrosive reactions, electroplating, acid baths and welding operations, can interact with the metal causing a loss in ductility and possible failure of the embrittled part. The ability to make a nondestructive determination directly on the steel part could prevent such failure.

NADC's system uses a strong magnet to clamp the device to the steel part and is therefore called the "barnacle electrode." The simple device, coupled with standard electronic circuitry, accurately measures hydrogen content as low as one part per million, comparable to one drop in about 18 gallons. Correlation of the results of these measurements with the failure rate established through laboratory testing can determine whether the part has been embrittled to the danger point.

Hornet Roll-out

The Navy's new fighter attack aircraft, the F/A-18, made its debut on September 14 at the McDonnell Douglas plant in St. Louis. Among those watching the rollout were Admiral Thomas Hayward, Chief of Naval Operations, and Lieutenant General Lawrence Snowden, Chief of Staff of the Marine Corps.

The *Hornet* taxied into view, painted with Navy markings on one side and



Marine markings on the other. An extensive flight test program is in store for the strike fighter, which is being built by McDonnell Douglas Corporation, prime contractor, with Northrop Corporation and Hughes Aircraft Co. as major subcontractors. The engines are provided by General Electric. Tests will be conducted at McDonnell Douglas, St. Louis, and at NATC Patuxent River.

Adm. Hayward praised the aircraft's "... simplicity, reliability, maintainability and commonality. It will," he continued, "provide us with an airplane that can be maintained with far fewer people and purchased in larger lots at more reasonable prices."

At present, the Navy is authorized to purchase 800, including 252 for the Marine Corps.

LAMPS MK III Program

The Naval Air Test Center considers LAMPS MK III one of the most diversified test and evaluation programs it has ever undertaken for a single weapons system. Several systems commands, major contractors, test sites and all of the NATC directorates are involved in creating and evaluating the new system. To coordinate the program, a special LAMPS office has been established in the rotary wing aircraft test directorate. Captain William O. Wirt heads the program.

While many NATC T&E programs concern aircraft which will serve aboard ships, LAMPS is the first one involving an aircraft which will become a permanent part of a ship's weapons system. Three new classes of ships are being

built for the LAMPS MK III. They will all have the RAST (recovery, assist, secure and traverse) system which is designed to reel in the helicopter in much the same way a fisherman reels in his catch.

The LAMPS MK III helo will perform SAR, communications relay, medical evacuation and vertical replenishment in addition to ASW and antiship surveillance and targeting. Capable of day and night operations, it will carry two torpedoes instead of one, 25 sonobuoys instead of 15, and will have a total avionics payload of 2,000 pounds. It has increased on station capability as well.

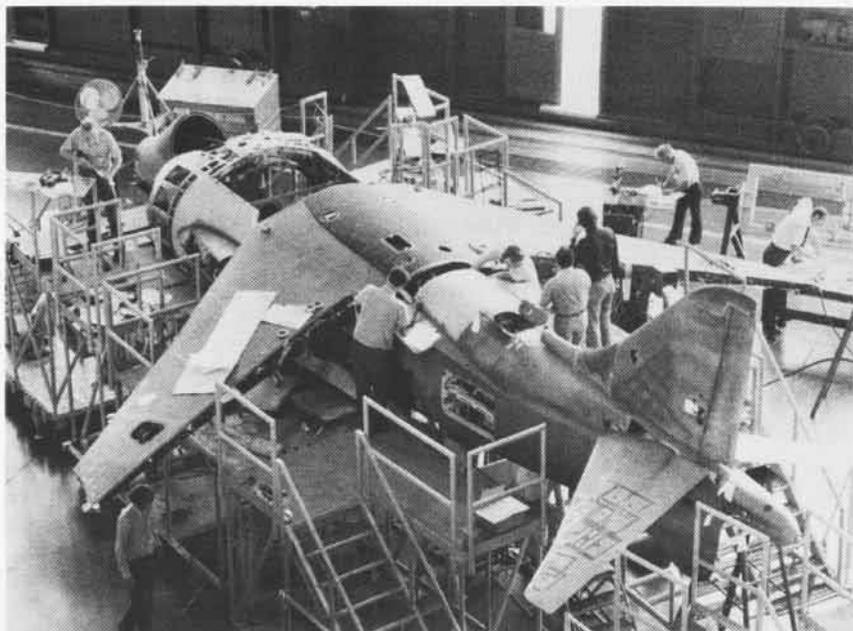
The aircraft is expected to make its first flight in December 1979.

Greyhound SLEP

The first C-2A *Greyhound* to go through the service life extension program at NARF North Island had its at-sea testing in June aboard *Ranger* off the coast of California. Personnel of the antisubmarine aircraft test directorate, NATC Patuxent River, evaluated the refurbished C-2A.

Advanced Harrier Wing

A new supercritical wing is mounted on a YAV-8B fuselage as one of two prototypes of the advanced *Harrier* takes shape at McDonnell Douglas Corporation, St. Louis. The new wing structure weighs 1,374 pounds, including



control surfaces not yet mounted. All spars and upper and lower surfaces are made of graphite epoxy, saving 330 pounds over conventional materials. The Marine Corps aircraft will have twice the range or payload of the A model, and will make its first flight late this year.

New CH-53D Rotor Heads

Under an extensive retrofit program, Marine Corps CH-53Ds are being equipped with new Sikorsky rotor heads which eliminate oil lubrication, seals and sliding parts, and reduce the total number of parts by 30 percent. Five rotor head kits have already been delivered to HMM-461, MCAS New River, N.C.

The new rotor head consists of a CH-53D main rotor head fitted with elastomeric (layered rubber-metal) bearings, related servos and swash plates. The elastomeric elements are the main difference.

The new rotors do not need periodic overhaul, whereas the old ones had to be overhauled every 850 hours.



grampaw pettibone

Get Out

The pilot of a T-2C was undergoing carrier requalification. He had already completed four arrested landings and cat shots without incident. After completing his checklists, he taxied across the shuttle for his fifth launch. The bridle was attached, tension taken, and he ran up his engines. Satisfied that all was normal, the pilot saluted the catapult officer. The catapult fired.

At the beginning of the cat stroke, the pilot heard a "bang" and "thud." He saw metal debris fly past the aircraft as a right swerve developed. Acceleration felt wrong and the pilot's first reaction was that the hold-back had failed. Realizing that the aircraft could not be stopped on deck, and it was too slow to fly, he ejected. He entered the water in front of the ship after one swing in the chute. The ship

mind the overeating!



Osborn

turned aside, missing him, and within minutes a swimmer from the plane guard helo was beside him in the water

lending assistance. Both were hoisted into the helo with little difficulty.

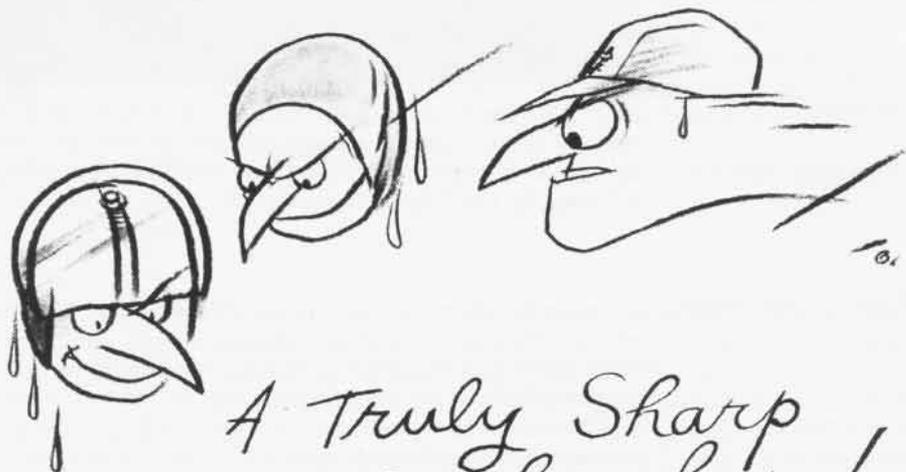


Grampaw Pettibone says:

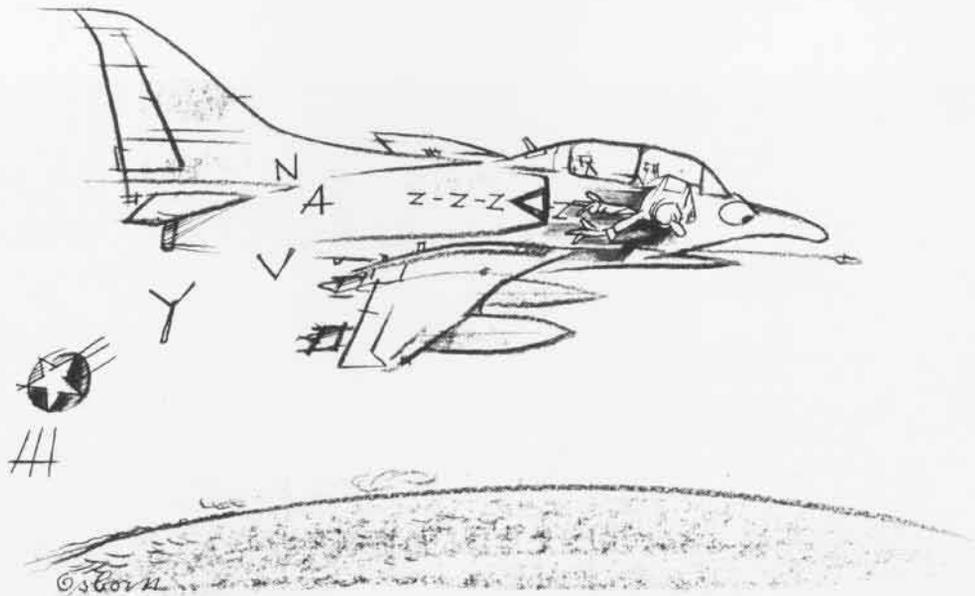
Holy cats! What a perdicament! Slidin' sideways with a busted bridle. This pilot coulda been killed. No daydreamer here. Things turned to worms and this young man acted positively and correctly. The pilot's promptness – the coolness on the carrier bridge – the professional coordination of the helo crew – all combined to save a life. Good work!

Self-medication?

The pilot of a TA-4F was on an RON at AFB West Coast. He was suffering from a cold and awoke at 0330, took a cold capsule and went back to sleep. At 0430 he arose after



A Truly Sharp Triple play!



five hours sleep, took two antihistamine tablets and proceeded to base ops. He filed a flight plan for NAS Home Plate on the East Coast with two en route stops.

Takeoff and the first two-hour leg were uneventful. The second leg lasted 2.5 hours with the pilot developing an ear blockage on final approach. After running some errands, the pilot commenced the final leg of the flight home. Leveling off at 17,000 feet altitude, he removed his oxygen mask and secured the flow of oxygen. Oxygen quantity was eight liters, cabin altitude was 8,000 feet, the AFCS was on altitude and heading hold and the throttle set at cruise power.

About 100 miles from base, the pilot experienced UHF difficulties but was able to contact squadron base radio and informed the duty officer he would be on deck in 20 minutes. That's the last thing the pilot remembers for the next 45 minutes. About 30 minutes after the radio transmission to base, the NAS Home Plate operations duty officer called the squadron duty officer and informed him that the TA-4F had overflowed home plate and was over the Atlantic Ocean heading east.

The *Skyhawk* pilot suddenly regained consciousness, observed his overwater position and turned west. Attempts by the pilot to establish radio contact with a shore facility were unsuccessful. A climb to FL200

was initiated and the pilot continued inbound. He established radio contact with a GCI controller and finally an FAA center 100 miles from home plate. The TA-4F was down to 1,000 pounds of fuel. At 26 miles the pilot commenced an idle descent to base and executed a successful landing. Measured fuel remaining at shutdown was 390 pounds.



Grampaw Pettibone says:

Jumpin' Jehoshaphat! Overconfidence, disregard for Natops and get-homeitis combined to just about kill this pilot. First, ole Gramps admires this lad's honesty in reporting the facts. Now let's learn something from his mistakes. Hypoxia and self-medication can be killers in an airplane. No one is immune. Flying without oxygen is foolhardy and lack of sleep dulls your ability to cope with routine living - much less fly an airplane. This pilot survived to tell his story. You may not be as fortunate. For long life, happiness and retirement benefits, pilots should get adequate rest, see their flight surgeon when a cold hits and abide by Natops. Nuff sed!

Eerie

The night was very dark when the *Skyhawk* driver manned his aircraft on the flight deck for a scheduled night mission. The engine start and all post-

start checks were normal. However, five minutes before launch, squadron maintenance personnel signaled to him that his plane was now "down." He had no indication why, so he double-checked inside the cockpit for a possible cause.

When he looked outside the cockpit, he had the sensation that he was rolling backwards from his position in the middle of the flight deck towards the port side of the angled deck. His first reaction was to step firmly on the brakes. When he continued to believe he was still moving, he dropped the tailhook and secured the engine to signal flight deck personnel to chock the plane's wheels. After there was no indicated change in rate of motion, he felt he was about to go over the side and pulled the override switch and raised the gear handle. The next thing he noticed was that the nose wheel had collapsed.

It was at this time that the *Hawk* pilot realized that he hadn't moved at all, but had mistaken the movement of the aircraft for the movement of his own A-4 *Skyhawk*.



Grampaw Pettibone says:

Great heavenly days, what a predicament! If your first reaction to this lad's plight is to smile, you'd better think twice. This sort of optical illusion can descend on the best of us. It takes real discipline to overcome it. (July 1968)

About That



Armyard Flattop . . .



Model, noun. A replica of something, usually in miniature, as of an aircraft or aircraft component; specifically, a replica having the same relative proportions as the original.

Aeronautical Dictionary

Models and modelers have always been part and parcel of aviation. There is probably a profound psychological explanation of why people devote so much time and energy to making replicas. Whatever the reasons, modeling is an appealing avocation. Looking at them may be as pleasing as building them. On this and the succeeding pages, *NANews* takes a random look at a popular part of the world of flying, scaled down. Stories were compiled by JOCS Dan Hansen.

If there is ever a contest for ingenuity and realism in building model Navy aircraft, David A. Gage of Rock Creek, Ohio, should win it, hands down.

Long ago, Gage decided that the average model airplane kit was not realistic enough. So, he started building his own out of materials at hand.

"I used to make my own toys when I was a kid, and from that I moved into models," he says. "I've always been interested in Naval Aviation. At one time, I intended to join the Navy and make a career of it. But," he smiles, "things happened. I got interested in farming, and one thing and another, and just never got there."

When you consider the complexity and detail in Gage's models it is hard to believe that he builds them out of cardboard. Other than paint and glue, the only materials that go into his work are the rubber wheels and plastic canopies that he buys from a local hobby shop.

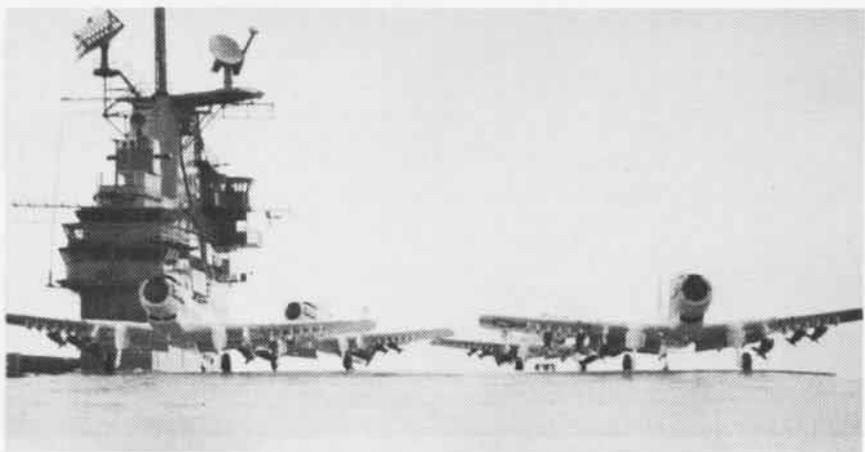
"I've been doing this off and on for about 20 years," Gage explains. "My early models weren't all that good, but then I accidentally stumbled on a way to fold cardboard without wrinkling it. After that, it was easy."

An incredible amount of effort goes into Gage's models. They are accurate down to the last gauge on the instrument panels. All of the doors and canopies work. He is thinking of ways to make retractable wheels operational.

His primary reference source for the models is *Naval Aviation News*, which he's been reading since 1956. He has more than 22 years' worth, nearly 300 editions, neatly filed on a shelf he built specially for them.

From information in the magazine — most often the monthly *Naval Aircraft Series* — Gage draws his own plans.

"It's easier if I can start with the aircraft specifications," he says. "I can draw the plans without it, but I feel

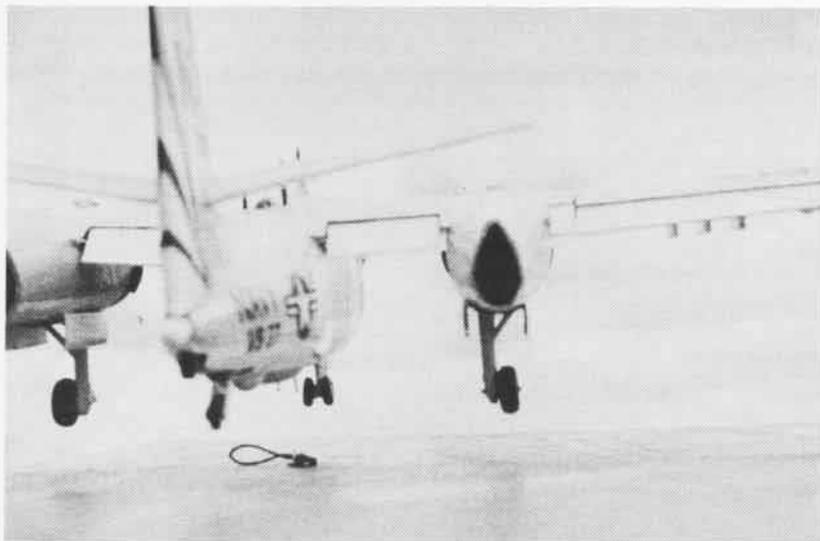


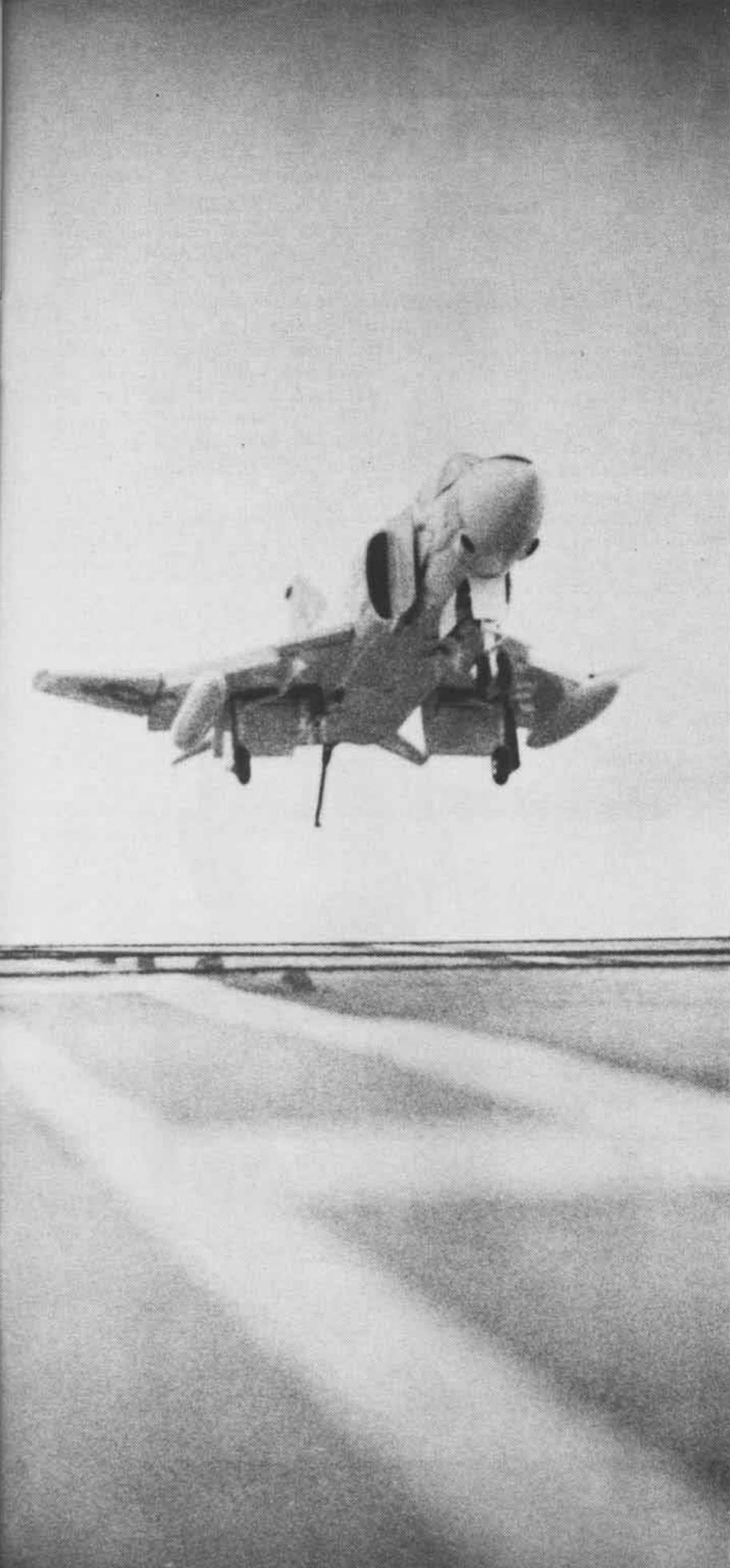
Opposite, top to bottom: Hawkeye traps on Gage's Oriskany. . . taxis on flight deck. . . which is later cleared for Skyraiders. Gage draws up plans, right, which result in superb quality models like hovering Seasprite, below.

Photos with Gage in them are by JOCS Hansen. Others were taken by Gage himself.



In a letter to NANews, the modest man with the remarkably realistic collection, referred to himself as "the bird in Ohio that makes cardboard Navy airplanes." Some bird! In these photos, a Gage Tracker launches, a Prowler waits at the head of the pack, and the master examines his Neptune. In the groove, opposite, is a Phantom.





better if I have a point of reference. Actually, the biggest problem I have is getting the fuselage proportioned right. The wings and the rest of it are not that difficult."

For most people, building these models would be an end in itself, but Gage carries his hobby one step further. In a field beside his house is a scale model of the flight deck of the decommissioned carrier, USS *Hancock*. It is complete with masts, radar antennas, a "manned" pri-fly, LSO platform and four arresting wires. He spent at least 100 hours building his flattop which has been rebuilt, painted and modernized several times since the keel was laid 15 years ago.

Gage suspends aircraft, hook down, by lines attached to a rod. He "flies" his planes in for traps, using a weighted chain stretched across the deck as an arresting wire. The result, for those who have seen carrier flight operations, is realistic indeed. Going one step further, Gage logs his landings. To date, he's made more than 3,800.

Examining his flight deck, Gage relates, "This thing began as a straight deck carrier. When they modified *Hancock*, I modified mine. I'm going to build a new one, though. This one is a little small for my planes. I'm thinking about USS *America*. Next time I'll build from the waterline up, have workable elevators and install it on a secondhand boat trailer. I'll make it 34 feet long. I don't know when I'll get it done, but I'm thinking about it."

It may take him a while, but eventually a miniature version of *America* will occupy a spot in the field beside Gage's house, and flight operations will continue. If you happen to drive along Route 45, about a mile south of Rock Creek, Ohio, and you see a man landing model aircraft on a model carrier, stop and take a look. Gage will be happy to tell you about his hobby.

MODEL MASTER

In 1918, 12-year-old Eddie Pachasa, formerly of Newark, N.J., watched his new friends in Cleveland, Ohio, build an Ideal flying model – a 36-inch *Military Tractor* – wind it up and then watch it crash.

Later that year, Pachasa began to construct a seven-foot hook and ladder truck for a younger brother. It took him a year and he did it without drawings. He just haunted a fire station and took measurements.

Years later, Edward T. Packard (he changed his name to avoid the problems of spelling and pronunciation) founded the Cleveland Model and Supply Co.

Ed Packard grew up during the exciting days of barnstormers – those daring young men in their flying machines who flew by the seat of their pants and used any level pasture as an airport. When he saw his first airplane, a Handley-Paige bomber, he decided he would have to learn about those things.

In 1919, 13-year-old Packard designed and built a twin pusher-type plane of white pine and sheet metal. He made eight *Skylarks* and sold them wholesale to three different dealers for \$1.75 each.

“It was tough dealing with those people,” he recalls. “I was just a kid, and it was hard for them to take me seriously.” But he plodded on. Two years later, he designed the *Moth*. He sold 250 of those.

Packard worked for several aircraft companies during the next 10 years, and also got deeper into the modeling business. While working at the Martin Aircraft Factory in Cleveland, he borrowed a set of plans for the Donald Douglas-designed MB-1 passenger transport conversion. From this plan he drew a set of 3/4-inch scale plans for both the MS-1 and MB-1. He and his family turned out model kits as the need arose.

In 1927, he ran his first ad in *Popular Aviation*. That was the year

Lindbergh made his Atlantic flight and, in the airplane mania that followed, Packard received an order for 360 *Moth* kits at \$1.25 each. Two years later, he incorporated as the Cleveland Model and Supply Co.

In 1930, Packard made model history when he introduced the Great Lakes *Sport Trainer*. By standards

then, it was far ahead of the industry. Detail for the tiny model was impressive. (Packard had access to the full-scale drawings of the prototype.) There were 16 step-by-step views for finishing and assembly of the nose to reproduce the engine and cowl. The nose detached with women’s dress snaps and there was a motor spar for each winding of the rubber motor. All wood parts were balsa instead of bamboo or pine – an innovation.

On June 8 that year, Joe E. Powalski of Cleveland sailed his Cleveland-designed 2T-1 3,608 feet, taking off from the ground. It was a world’s record.

The Thompson Trophy races start-

A few years ago, Packard posed with his *Travel Air* and a *Republic Amphibian*.



ed in 1929 and became immensely popular. Packard hung around the hangars and scaled measurements of the planes to put out models. His Travel Air *Mystery Ship* model of the first race winner was one of the first low-wing flying models ever produced.

Cleveland Models (CD – Cleveland-Designed, as they came to be known) rapidly became the hottest items in the modeling world during the Thirties and Forties. Packard sold over 50 million kits during those years, and the price was right, even for those times.

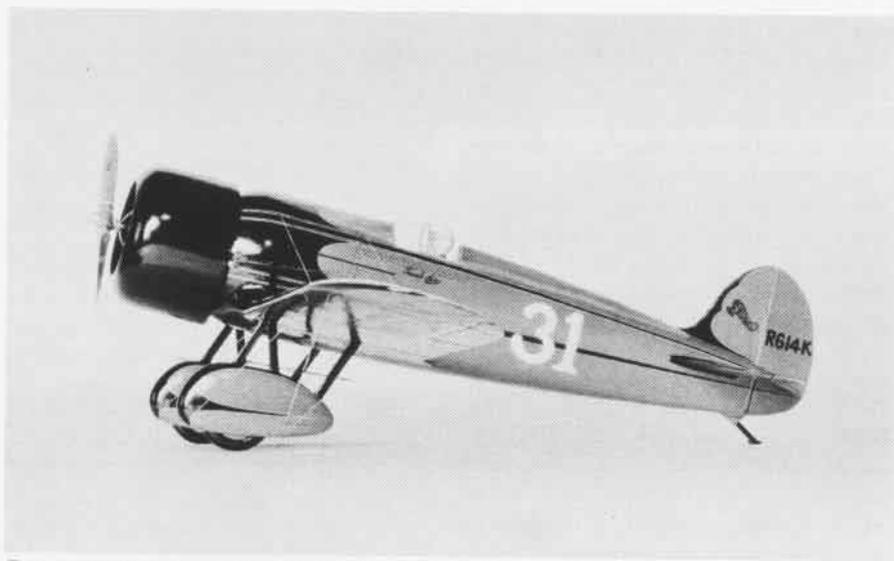
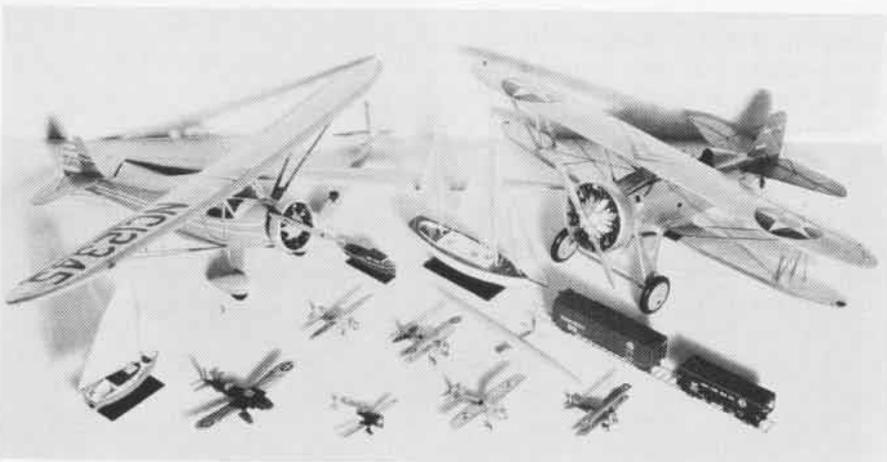
“We purposely kept the price down,” he says, “because we were selling mostly to kids and kids just didn’t have money. I remember kids who would ride 10 or 12 miles on a bicycle to spend a dime or a quarter for a small bottle of glue and a few strips of balsa wood.”

During the peak years, Packard employed over 100 people, including six full-time draftsmen. “It just seemed like we never had enough time,” he recalls. “We did everything – buying, selling, advertising, putting – kits together, making new plans.”

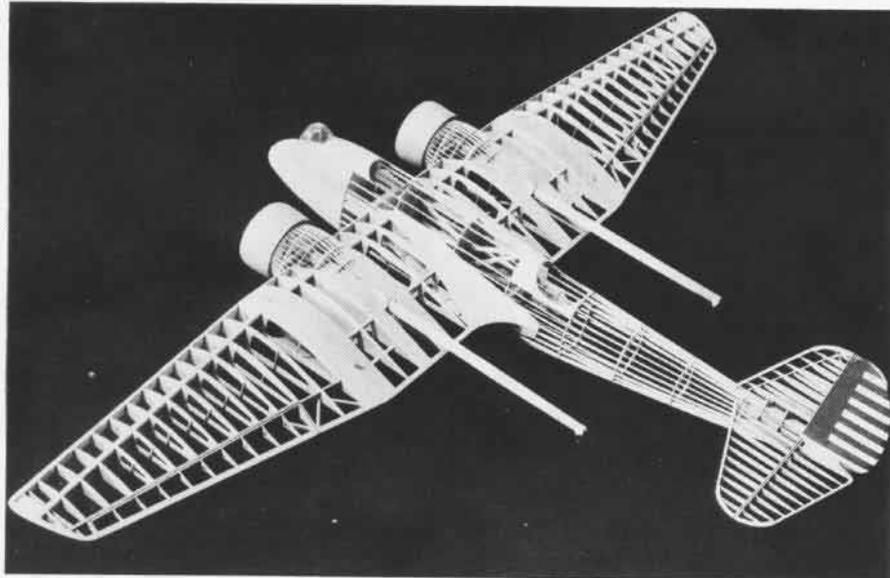
In spite of his total involvement and dedication to aviation, Packard never learned to fly. He laughs about that now. “You know,” he says, “I always wanted to fly my own plane. In fact, during the early Thirties, there was a man who was going to teach me. I knew he used his plane to smuggle rum into the States from Canada but that didn’t bother me. I was just a kid, and I had a chance to learn. But the police found out about him and he just disappeared. And my chance was gone, too. Then, the business started picking up, and I just never had the time after that.”

Business declined after WW II. Plastics hit the market, and people seemed to lose the patience needed to construct a CD Model.

“Kids today are in a hurry,” he says. “They want something they can put together and fly right now and, in a way, I think that is sad. But, when a youngster built a CD Model he knew something about airplanes when he finished. He had a basic knowledge of aircraft construction and he knew something about aerodynamics.”



Top, on display are a variety of smaller Packard creations with larger Monocoupe, circa 1930, left, and Navy F4B, right. Above is a Travel Air and, below, a finely detailed Martin Bomber in the making.



The Cleveland Model and Supply Company is still in business, although it is nowhere near what it used to be. Ed Packard runs it by himself now. He is 72 years old, but he still puts in a full day working on the top floor of a five-story warehouse on Detroit Avenue in Cleveland. You can still order a set of plans for just about any kind of airplane you want. But only the most dedicated model builders will go out and buy the necessary wood and materials to build from these plans, so business is slow.

Packard has done a couple of things, though, to ensure that the art of building classic flying models is not lost completely. He has donated three finished models, an Me 109 Messerschmitt, a Boeing B-9 bomber and an uncovered skeleton model of a Curtiss F11C-2, and one of his kits to the Air Force Museum at Dayton, Ohio, where they are on permanent display for future generations. His original model drawings are in the archives of the Science and Technology Department at Case Western Reserve University.

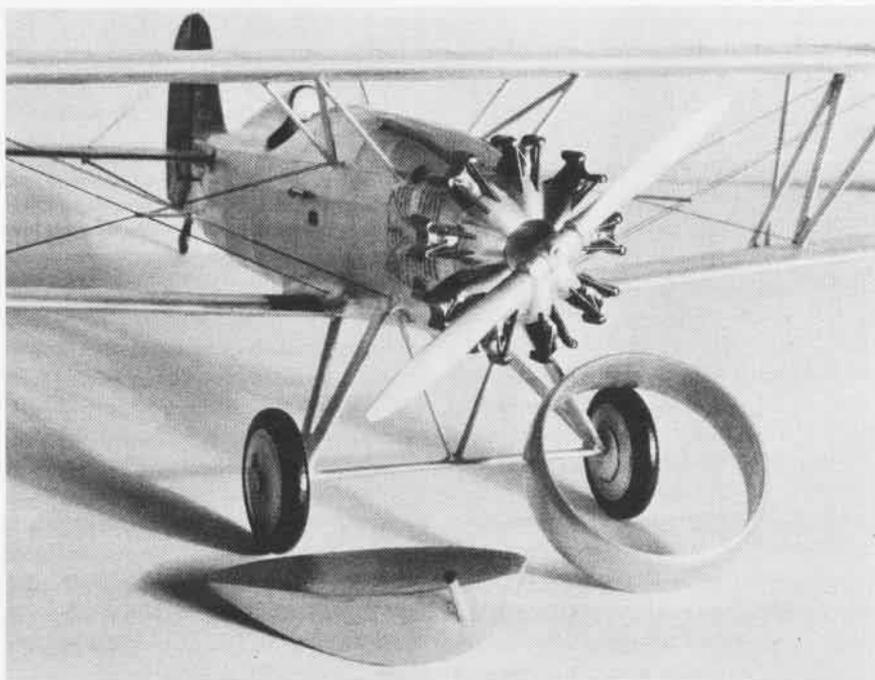
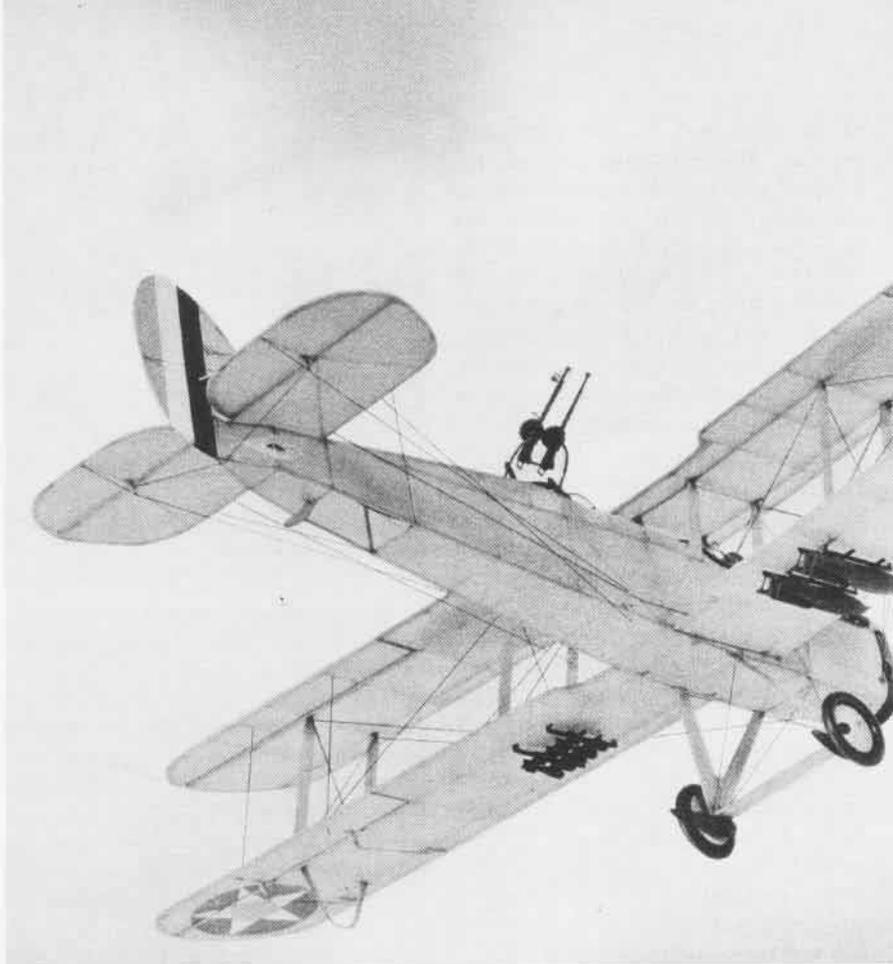
It is impossible to measure the impact that Ed Packard had on the field of aviation. He was there at the birth of an industry that literally changed the world. He had the talent and the foresight to make the vehicles of the industry available to the youngsters of the world on a level they could understand. From there, dreams were built, and those dreams materialized with space flight and a walk on the moon.

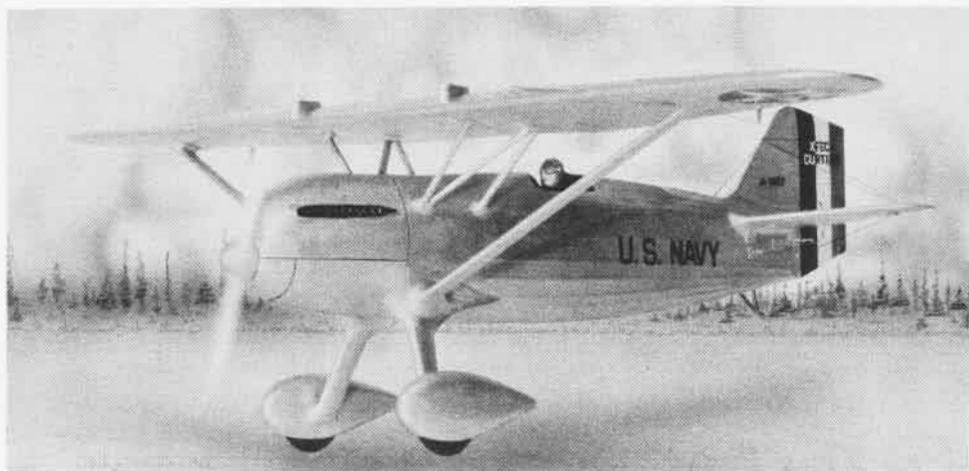
Knowledge is an intangible thing, but that's what Ed Packard sold with his CD Models. Knowledge of how an airplane works, how it is put together, what makes it fly, and why it has to be the way it is.

Solarbo Ltd., an English distributor of balsa, paid this tribute to Mr. Packard in an ad in *Aeromodeller*.

"If we can talk of the romantic days of aeromodelling, it was when the Cleveland flying scale model kits were in their heyday – in the 1930s. There have never been models like them."

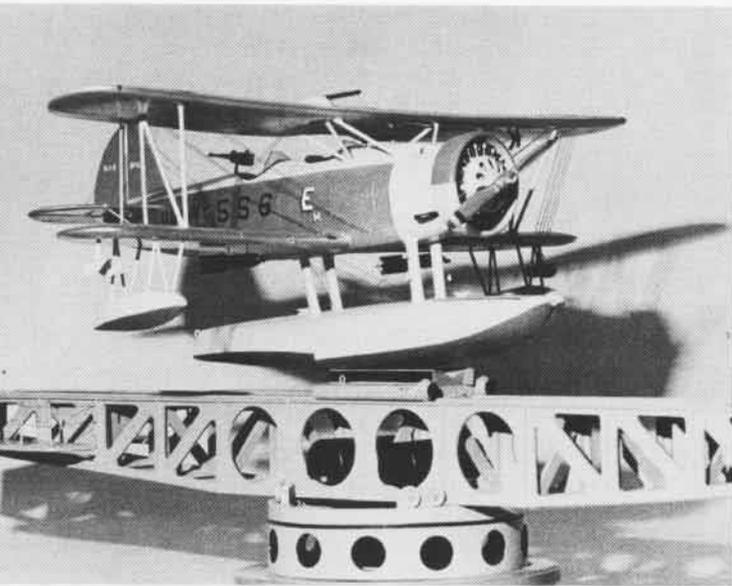
There is no telling how many people were inspired by Ed Packard models to pursue aviation careers, but the number has to be a high one indeed.



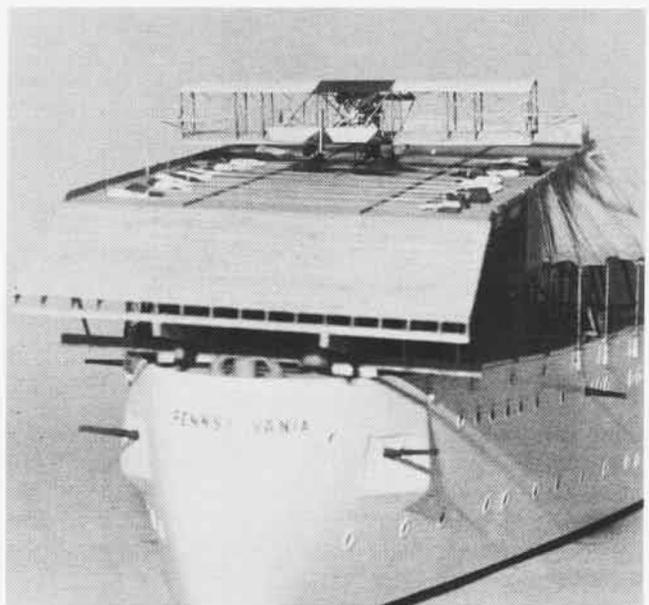
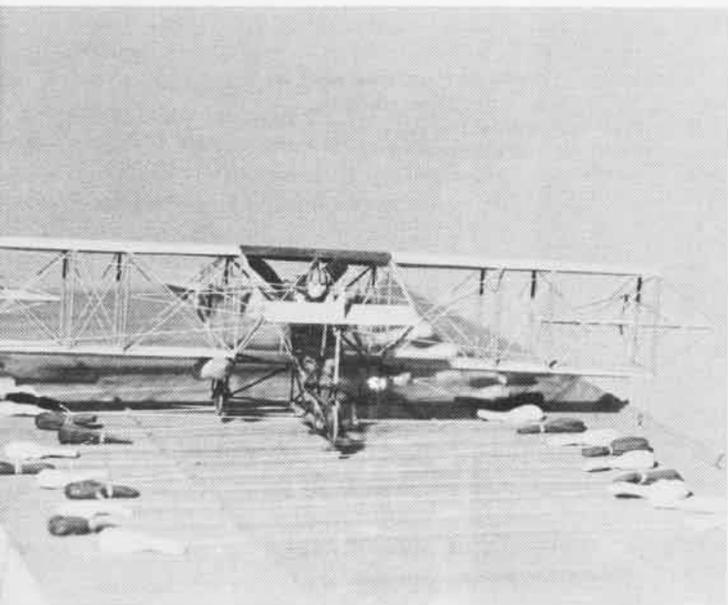
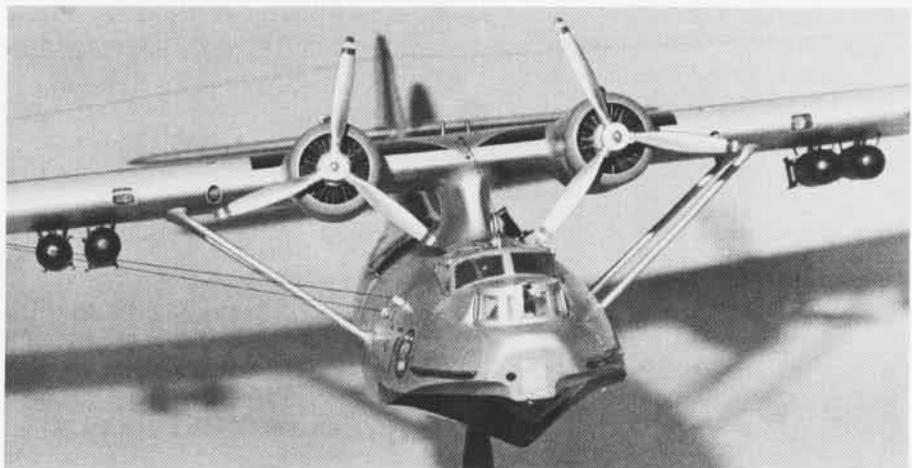


These Cleveland models are, clockwise from upper right, a Curtiss F6C, an F11C, the front cover's Sparrowhawk, photographed by JOCS Bill Bearden, an F4B-3 with cowl and fuel tank removed, and a deHavilland 4.

More Models . . .

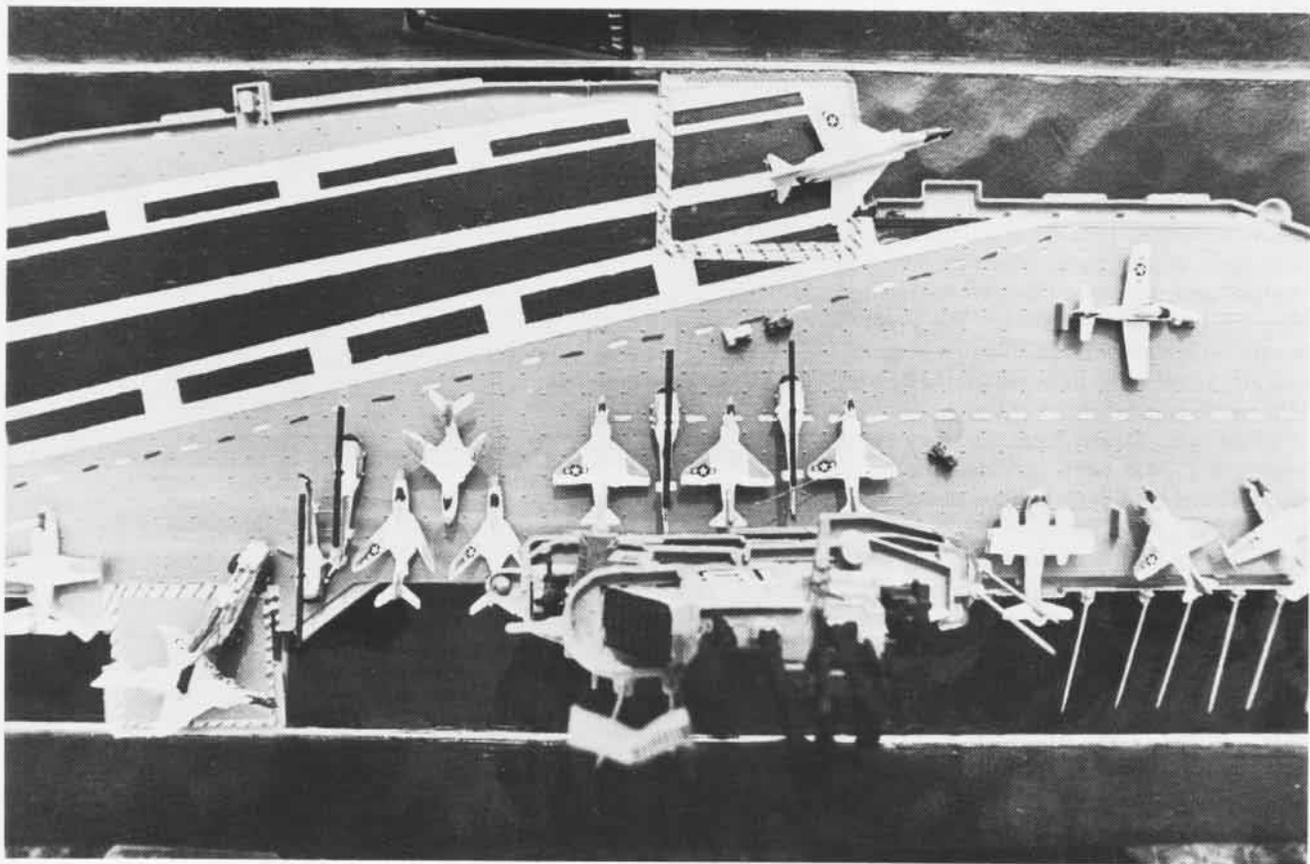
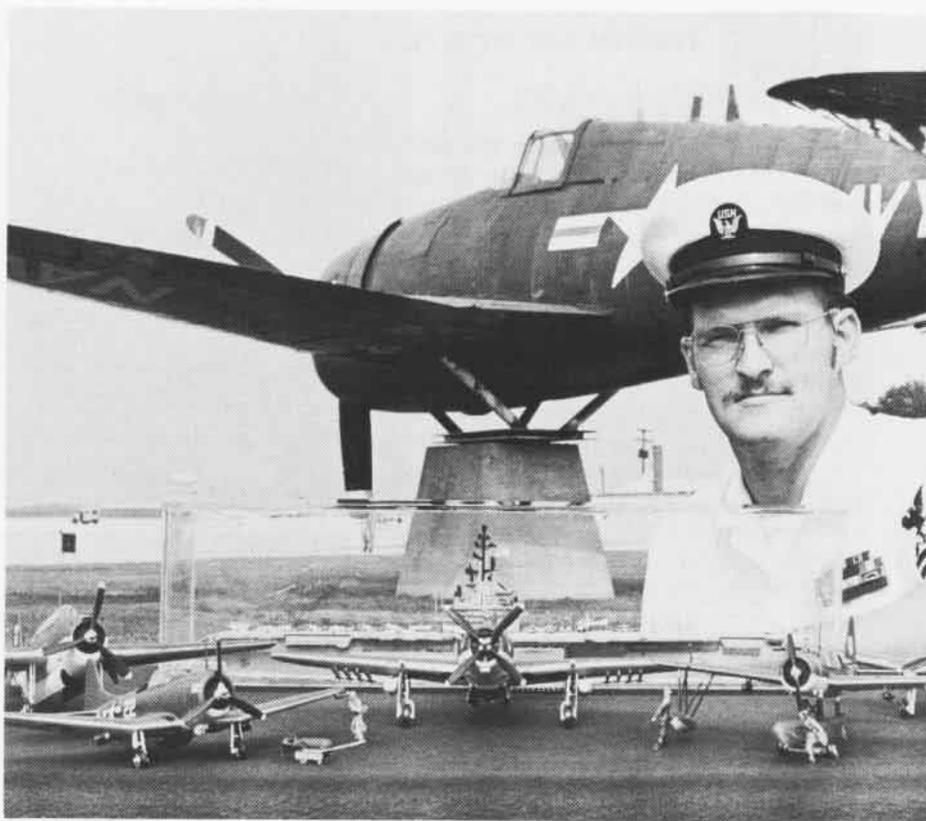


JOCS Bill Bearden filmed these handsome replicas at the National Air and Space Museum in Washington, D.C. On the catapult is an OJ-2. Above right, Wynthrop S. Shaw of the Department of Aeronautics at the museum works on a Grumman J2F-1. Posed on a pedestal is a PBX-4. Below are representations of the first shipboard landing by Eugene Ely in 1911. These models are now on display at the Pentagon.



Three years before he joined the Navy in 1967, AZ2 Joseph A. Raubar was building models. Using commercial kits, he estimates that he's completed over 1,200 replicas over the years, ranging from spacecraft to automobiles. The Revell Company, in fact, has praised Raubar for his prolific endeavors and issued him a Master Modeler Certificate for building 100 kit models in a single year.

The 31-year-old sailor has donated many of his works to people like President Gerald Ford, Admiral Elmo Zumwalt, former Secretary of the Navy J. William Middendorf II, and organizations such as the Grand Lodge of Masons of South Africa, the French and Indian Embassies and the Pensacola Historic Museum. Raubar, assigned to NAF Washington, D.C., was photographed with a fraction of his collection by *NANews*' JOCS Bill Bearden. In the background is NAF's real-life F6F Hellcat, mounted tetrahedron style near base ops. The overhead view shows a Raubar-built carrier and a few of its planes.



Much has been written about the role of the torpedo bombers in the Battle of Midway—all of the U.S. carrier-based ones being TBD *Devastators*. Missing their fighter cover, the TBDs were largely sacrificed making their low-altitude torpedo runs on the Japanese carriers. However, they did draw the Japanese fleets' attention away from the arriving SBDs as the *Dauntlesses* pushed over into their successful dive bombing attacks. Devastated in this, their final combat action, the *Devastators* remaining were rapidly phased out of combat squadrons.

Eight years earlier, in 1934, the Bureau of Aeronautics held a design competition for a new torpedo bomber to replace the then totally obsolete carrier torpedo planes. Prototype contracts went to Douglas for its monoplane design and to Great Lakes for a biplane. The Douglas XTBD-1 first flew on April 15, 1935; production models were initially ordered in the spring of 1936, after completion of prototype trials. The biplane XTBG-1 faded into oblivion. A large, all metal construction, low-wing monoplane, the TBD-1 was the first production low-wing monoplane ordered for Navy carrier duty. The initial and subsequent orders resulted in 129 TBD-1s being delivered to the Navy, the first to VT-3 in October 1937, the last delivered in 1939.

Noticeable in the TBDs was the long cabin enclosure, providing sliding sections over each of the three crewmen seated in tandem, with the pilot's section the highest, allowing him good visibility. The Pratt & Whitney *Twin Wasp* was also a first in carrier aircraft, as were the power-operated upward folding wings.

While the *Devastators*, as they were named in 1941, were considered a major step forward in torpedo bomber design when the XTBD-1 was tested in 1935, by the beginning of WW II they were largely obsolete. Their replacement by TBF *Avengers*, already under way at the time of Midway, was completed shortly afterwards.

One unusual version of the TBD was the twin-float-equipped TBD-1A, tested, as were other carrier types, for possible sea-based operations. As with the others, the seaplane version never proceeded beyond testing.

TBD-1



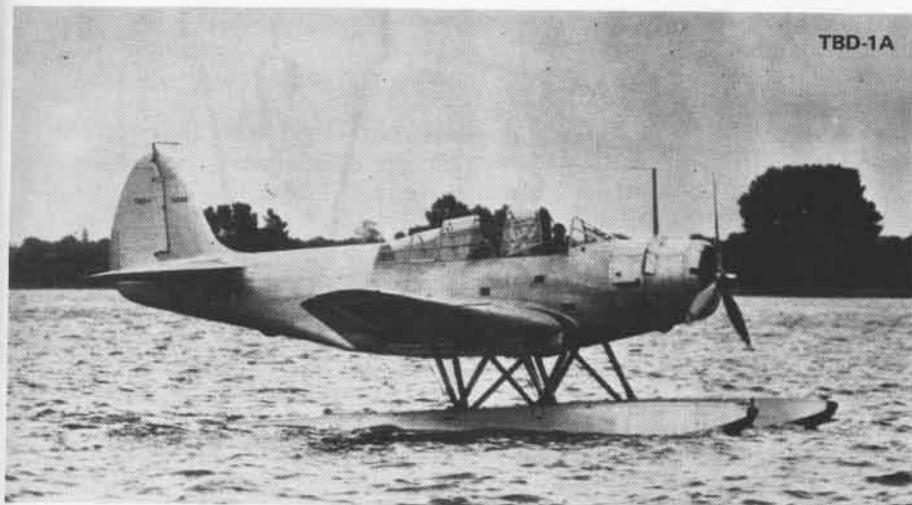
TBD-1



TBD-1

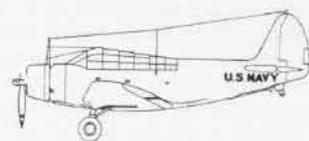
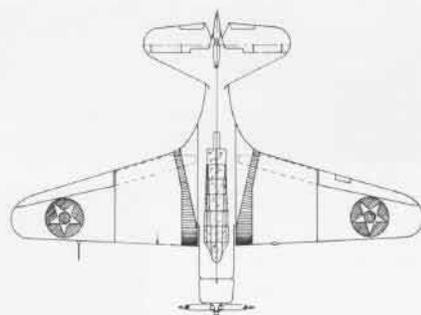


TBD-1A

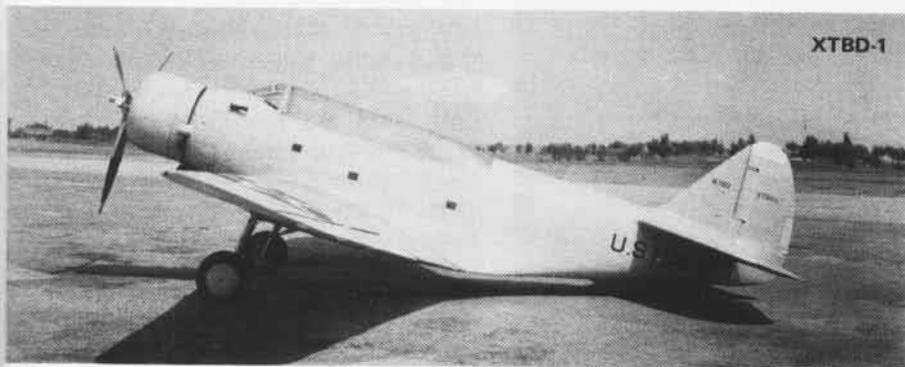


Maximum speed	207 mph
Service ceiling	21,300'
Range	890 miles
Armament:	
	one synchronized .30 cal machine gun
	one flexible .30 cal machine gun
	one torpedo or up to 1,500 pounds of bombs
Span	50'
Length	35'
Height	15'1"
Powerplant	P&W R-1830-64 900 hp

TATOR

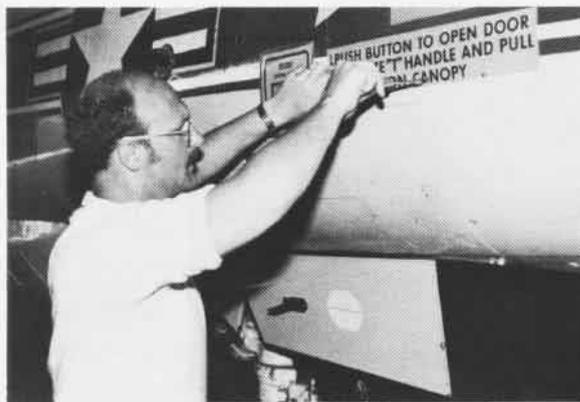
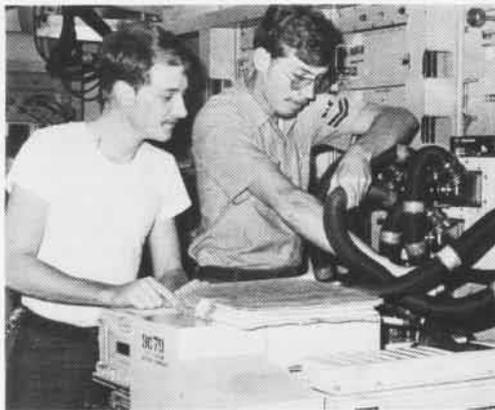


XTBD-1





By JO1 Len Churilla



Top, (from left) Doynos, AT1 George Williamson and Evans discuss technical problem. Directly below: left, AT3 Raymond Wilson (left) and AX2 Gary Drennan, VS-38, trouble-shoot interface between VAST and an S-3A radio frequency amplifier and antenna coupler; right, AX2 James Young repairs and adjusts a VAST magnetic tape drive. Above, AQ1 Michael Riley, VF-1, removes a WRA from an F-14 for induction into VAST. Right, AT2 Robert Allen calibrates a magnetic tape transport unit.



VAST

Without the VAST services of IM-5 Division, the *Big E's* F-14 *Tomcats* and S-3A *Vikings* would not come to a screeching halt on her flight deck. In fact, they wouldn't even be airborne. IM-5 is a new division of the carrier's aircraft intermediate maintenance department.

The S-3As have 670 separate assembly systems and the F-14s over 1,000 that must be maintained by IM-5. Because of the complexity of the work done by the 30 sailors and four civilian technical representatives,

the work center recently split off from the IM-3 division.

"The original 3M concept of maintenance doesn't quite fit into the VAST (versatile avionics shop test) system on *Enterprise*," says ATC Arthur E. Evans, who heads the program aboard CVN-65.

Computerized weapons assembly systems began in the early Sixties, but the Navy found that a new concept of management was needed because the equipment was so complex and the cost of training personnel and obtaining material was so high.

"In the future we will have the additional responsibility of supporting the E-2Cs, F/A-18s and A-7s. Our work center now is limited to only automatic test equipment," says Evans.

In the work center, six men are from ships company and 24 are on temporary duty from their squadrons (VFs 1 and 2 and VS-38). Squadron personnel do aircraft maintenance and ships company personnel maintain the four VAST stations and a fifth computer station.

"All assembly systems are brought into the work center and the faulty avionics equipment is examined," says AQ1 Robert Lee McCarty. "We hook up the assembly unit to one of the computer stations and the unit is examined through VITAL (VAST interface application language) just as a doctor examines his patient, isolating symptoms and prescribing medication. We can watch the entire process on a TV screen as the sick unit answers the program tape's questions."

Sometimes the supply section has replaceable components ready for issue and it's just a matter of paper work to account for the cost of the replacement items. If the replacement part is not readily available, it is listed for expeditious repair or as not in stock.

Work requests for avionics maintenance, are processed without delay. Pilots report malfunctions to a squadron maintenance technician who may trace the fault to one of the assembly units. He fills out a maintenance action form and sends it to the ship's supply response section. The form is screened and processed by supply and

a copy of the work order is retained. The maintenance action form is then sent to the production control center which establishes priorities and gives the squadron a daily status report. Within an hour after a squadron reports a malfunction, VAST is working on the problem.

The VAST shop handles most repair work on shop replaceable assemblies (SRAs). "If we have the components," says McCarty, "we can repair the assembly in a short time. This shop processes 400-450 weapons replaceable assemblies per month. Between 80 to 85 percent of our SRAs are handled this way. But sometimes we don't have the component, especially if it is rare or expensive. We recently had to special order a \$41,000 part from a naval rework facility in the United States."

VAST personnel represent the ratings of aviation electronics technician, aviation fire control technician, aviation antisubmarine warfare technician and aviation electrician's mate. "With the volume of administrative paper work we handle, we could also use an aviation maintenance administration man and an aviation storekeeper," says McCarty.

"All the men here attended some type of avionics maintenance school," continues the 11-year Navy veteran who spent five months at the VAST Maintenance Technician School in Norfolk, Va., before coming aboard *Big E* in June 1975. (He will be transferring soon to the Advanced Avionics School at NATTC Memphis, Tenn.)

AT1 Pat Ulrich, a ten-year man who operates one of the computer stations, spent four weeks at the VAST operators school in Miramar, Calif. While attached to VF-1 at NAS Miramar, Ulrich was asked to join the VAST program. "I'm glad I did because my new job is an improvement for me," he says. "Instead of the everyday maintenance problems I used to face in the squadron, I now see the overall picture and the complexities involved. Another advantage is that I can see bits and pieces of newly developed aircraft before the squadrons see them."

AT3 Bob Reiss is from VF-1. He attended 16 weeks of maintenance school at Miramar and was a student of Chief Evans, who was an instructor before coming to *Enterprise*. "I like it here because I get a lot done and the people here work as a team," says Reiss.

The technical representatives maintain liaison between the ship and the companies which manufacture the equipment, such as Grumman and Lockheed.

"Sometimes I feel like I'm in the Navy myself," says George Doykos one of the tech reps, "since it's my first cruise and I identify with the younger sailors. Technical consultants aboard Navy ships are usually selected from younger, unmarried men in my company. I can easily see how disruptive life at sea is for married sailors.

"After receiving a physical and a clearance, we're given a six-month trial period aboard a ship to interface with Navy personnel to see if we're compatible and can withstand the rigors of Navy life at sea. In port we work eight hours a day but at sea it's a 12-hour shift and we're on call 24 hours a day, just like the sailors. The sea billets for consultants are renewed at the end of each fiscal year but we have a choice of staying on or going back to the company. It's an experience — going to sea — but I look forward to visiting foreign ports. I may sign up for another aircraft carrier when this cruise is over."

Grumman's Dan Mogelinski, was in the Navy in the early Fifties aboard USS *Champlain*. "I got interested in avionics after my Navy hitch was over," says Dan, "and worked for several companies as a field consultant for over 20 years. Actually, I've spent more time at sea as a civilian than I did when I was in the Navy. After training in the field service I made a cruise aboard USS *Constellation* and I made the last cruise aboard *Enterprise*."

A Navy veteran of 18 years, Chief Arthur Evans was one of the first people in the original VAST maintenance program in 1972. He sums up his feelings about the avionics repair field: "It's definitely a challenge, even to the sharpest mind."

RESERVE WING HELOS

By LCdr. Robbie Robinson

There is no argument that the Naval Air Reserve has as many definitions as it has units. To Commander Mel Taunt, it means just one thing: helicopters. As Commander, Helicopter Wing Reserve, Cdr. Taunt commands Navy's seven reserve helicopter squadrons. No soft job.

The wing's squadrons are home-based from Alameda to Point Mugu to North Island (the wing's home); and from Norfolk to Lakehurst to South Weymouth.

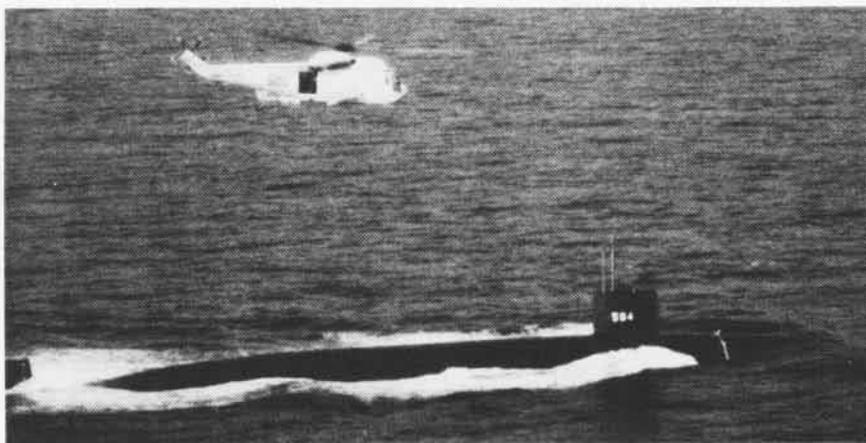
The CAG's staff includes officers and senior petty officers experienced in helicopter aviation. Since the wing's inception in 1975, its staff has seen the reserve helicopter community grow in dependability, mission proficiency and stature.

The wing's units, two antisubmarine squadrons on each coast, two light attack squadrons, flying HH-1Ks, and a combat support squadron based at North Island, are active, well-trained and functional members of the nation's naval force.

The squadrons are manned by a cadre of active duty personnel and inactive duty reservists. The latter may be airline pilots or students, mechanics or lawyers, but all are professionals. The wing commander makes this clear, "My association with the Naval Air Reserve Force these past 18 months has been one of increasing respect and admiration. Its professional competence and overall level of achievement is equal to that of any active

(Cdr. Milos Koutsky and LCdr. Jimmy Cantrell contributed to this article.)

At right, Cdr. Taunt preflights an aircraft. Center, Det 845 helo after an emergency landing on HMNZS Waikato. Far right, HAL-5 gunship prepares to fire. Below, a hunter stalks its prey.



duty squadron. For example, a reserve HS squadron's full-time, active duty manning is only 4 pilots and about 50 enlisted men, yet they maintain eight SH-3A/Ds. Compare this to the 24 pilots and over 150 enlisted men normally assigned to an eight-plane HS fleet squadron. Out of necessity, our total flight programs are somewhat less than those of a comparable fleet unit, but our aircrews operate routinely from all sizes of helo-capable ships and in the same ASW environment. Significantly, the collective total of accident-free flight time for the seven squadrons exceeds 96,000 hours."

The primary occupation of the antisubmarine squadrons is, of course, ASW, but operations of the four reserve units encompass a great deal more. It is not unusual for a unit deployed aboard a carrier to perform plane guard as well as search and rescue duties.

The light attack units fulfill a relatively new role. During the mid-Sixties the Navy began employing heli-

copter gunships in Vietnam. Two-plane detachments staged from various small fields or vessels to provide a quick-reaction, close air support capability. The reserves are now solely responsible for this mission.

The wing's combat support squadron also provides expertly trained combat search and rescue crews. HC-9 is the only Navy squadron whose mission is entirely devoted to combat SAR.

Of particular note for the wing this year was the extended Western Pacific deployment of HelWingRes Det 845, which consisted of elements of Commander Tom May's HS-84, NAS North Island, and Commander Roger Salisbury's HS-85, NAS Alameda. With three SH-3As, the det operated from the Canadian supply ship HMCS *Provider* (AOR-508) for almost four months. During the deployment, which included participation in Exercise *RimPac 1978*, the reserve aircrews and maintenance personnel furnished substantial antisubmarine protection



for *Provider* and her escorts.

The Americans benefited as well (and not only from the in-port periods in Australia, New Zealand and Fiji!!). Both squadrons rotated 80 reserves through the detachment, the flight crews logged more than 50 hours, and the maintenance people kept the birds in an up status throughout the cruise, exceeding 90 percent mission ready status.

Cdr. May reflected on the cruise, "This extended deployment aboard HMCS *Provider* was the best training opportunity that HS-84 has had to date. Squadron readiness was greatly increased. The experience gained while conducting all-weather ASW operations from the small deck of a Canadian AOR during a multi-nation fleet exercise was invaluable. The close working relationship that developed between the Canadian, New Zealand, Australian and U.S. forces was remarkable. To sum it up, the entire deployment was an experience that we will never forget."



For this deployment the West Coast HSs made good use of the detachment-sized AcDuTra concept. This permits participation in fleet activities throughout the year and results in a high degree of squadron readiness.

The East Coast HSs were equally busy. Commander Don Coolican's HS-75, NAEC Lakehurst, took part in a variety of exercises and operated aboard numerous ship types from LPDs to CVNs. It supported H-53E shipboard trials and provided plane guard detachments for fleet carquals on several Atlantic Fleet CVs. Detachments of the squadron went aboard HMCS *Protecteur* (AOR-509) in September 1977 to take part in a major multi-nation exercise. The squadron frequently performs intensive ASW training out of NAS Jacksonville and conducts its annual AcDuTra there.

Commander Jack Langford's HS-74, NAS South Weymouth, joined *America* (CV-66) for a 10-day period in April when it provided plane guard and SAR services for fleet carrier qualifications. In January and February 1977, the unit deployed aboard HMCS *Protecteur* for *CaribEx 1-77*. HS-74 also has the distinction of being one of the first outfits to operate from *Eisenhower* (CVN-69).

The close and traditional relationship between the Navy and the civilian community was displayed when severe blizzards in the Northeast last winter created hazardous and sometimes life-threatening conditions for segments of the population. HS-74 crews were responsible for a number of timely medical evacuations during this crisis.

HC-9 is North Island-based and skippered by Commander Don Hodge. Regular deployments to NAS Fallon, Nev., to work with fighter and attack squadrons help HC-9 crews sharpen their search and rescue abilities. Fallon's location in the high desert and the nature of the combat-simulated missions flown there hone their skills to meet the demands of an actual rescue operation.

Like all of the wing's squadrons, HC-9's mission readiness is due to the efficiency of the maintenance personnel. The unit has operated without a special interest aircraft for some 15 consecutive months. (Special interest aircraft are those which have been down in excess of 30 days.)

Special warfare groups and riverine forces require close air support similar to that given the brown water Navy of the Vietnam era. The attack element of the reserve helo wing trains to provide that support.

HAL-4, skippered by Commander Jim Poe, made a June deployment to the Mississippi delta where the squadron operated effectively in the hot and humid environment. In addition to its close air support role, it practiced SAR operations and, on one occasion, conducted a medevac of a seriously injured civilian.

HAL-5, with Commander Bob Womble at the helm, is the newest member of the wing. It was commissioned in early 1977 and gives the Navy a light attack capability on both coasts. Based at NAS Point Mugu, the unit has already made a name for itself. After participating in a joint-services riverine exercise in April 1978, it earned the praise of Commander, Coastal River Division Eleven, "The enthusiasm and innovative professionalism of the pilots and aircrewmembers were superb and definitely the highlight of the exercise."

The mission requirements for the Reserve Helicopter Wing are varied and demanding. Each squadron has its own primary assignment in addition to the search and rescue role of rotary wing aircraft. They operate from the biggest and the smallest decks. They provide services to the fleet and to the reserve community, and they are often there when the civilian population is in need.

HAL-4



The commissioning of HAL-4 at NAS Norfolk in July 1976 revitalized the kind of support capability essential to special warfare group operations.

During the early days of the U.S. presence in Vietnam, Helicopter Combat Support Squadron One provided detachments of UH-1B *Huey* gunships. They staged from small amphibious vessels to provide quick-reaction, close-air support for the Riverine Forces, Seal Teams and other units of the

Navy's Special Warfare Group in the Mekong Delta. As their effectiveness became evident, their mission requirements increased.

In April 1967, Helicopter Attack Squadron Light Three was established in South Vietnam. In increased numbers, gunship detachments were located at strategic support positions throughout the Mekong Delta. HAL-3 *Seawolf* crews flew an average of 600 combat missions during a 12-month tour. In 1972, after five years of support operations in South Vietnam, the squadron was disestablished. Vice Admiral Maurice F. Weisner, then DCNO (Air Warfare), in a Well Done to HAL-3 and VAL-3 (also decommissioned), said, "As the only two commissioned Navy air units living and fighting in-country you have added a new and major chapter to the history of Naval Aviation."

Operating their HH-1Ks with the M-21 weapons subsystem, HAL-4's *Redwolves* have the same type of power that HAL-3 had in South Vietnam. However, the ammunition load is greater because of increased lift capability. With 7 helicopters, 10 flight crews and 91 maintenance and administrative support personnel, HAL-4, a unit of Helicopter Wing Reserve, operates in close support of Commander, Naval Special Warfare Group Two and other Navy units.



GOLDEN EAGLES

By Vice Admiral B. M. Streaan,
USN (Ret.)

When the U.S. entered WW I in April 1917, Naval Aviation's total strength (Navy and Marine Corps combined) consisted of 48 officers, 239 enlisted men, 54 assorted airplanes, 1 airship and 3 balloons. NAS Pensacola was the only air station of any consequence. At war's end in November 1918, Naval Aviation counted 6,716 officers and 30,693 enlisted men, plus 282 officers and 2,180 men in Marine Corps units, 2,107 heavier-than-air craft, 15 dirigibles, 215 kite and free balloons.

Ground instruction for prospective pilots and aviation ground officers began at Massachusetts Institute of Technology soon after the U.S. went to war, with a class of 43 students called Flight #1. Thereafter, flights of 50 students each followed at close intervals until the end of the war.

Two groups of dedicated Yale men earned their wings early in the war. The men in Yale Unit #1 enlisted in the Naval Reserve Flying Force and began training at West Palm Beach. Members of Unit #2 purchased their own plane and took flight training at their own expense in Buffalo, N.Y. After their commissioning as Naval Aviators, the Yale men served as instructors for incoming flight students.

Commander Ernest F. Johnson, Naval Aviator #25, commanded the flight school at Pensacola. The aircraft used for training were N-9s, single pontoon seaplanes with Hispano-Suiza engines and a top speed of 55 knots, and Curtiss F Boats with OXX engines.

In those days, under the pressure of war, the usual requirement to qualify for Navy wings was 2 hours and 45 minutes of instruction and 24 solo hours. Some received less. Fledgling pilots were expected to suddenly become accomplished aviators, qualified to fly seaplanes. Many received orders for overseas together with their wings.

When the war ended some 1,900 Naval Aviators had been trained. They were the true pioneers of Naval Aviation, loyal, dedicated and charged with the courage and spirit of adventure that characterize fighting men. The young pilots knew the dangers of flying and the added risks of taking crude planes into combat. Yet every one was an enthusiastic volunteer. Naval Aviation owes them much. They set a superb example and gave the flying Navy a tremendous start.

The Early and Pioneer Naval Aviators organization was formed many years ago with those first Naval Aviators eligible for membership. The number of members was limited to 200, later expanded, and then returned to the original limit. In the years that followed, the eligibility list was enlarged to include those who first carrier-qualified on *Langley* (CV-1), and the first jet and first helo pilots. Incidentally, many quarrelled with *Langley* at anchor or alongside the dock. The only really blind carrier landings were practiced in a fog with *Langley* dockside. The bylaws were also amended to include 10 active duty Naval Aviators. Through the years, a few other pilots, those who pioneered in some phase of Naval Aviation or made significant contributions, were asked to join. But even with those additions, attrition was becoming a problem.

A year ago, the membership realized that since many *Golden Eagles* were in their 80s, the rate of loss was not going to improve. It was decided to adopt another method of choosing their president. The nominating committee selected Vice Admiral "Smoke" Streaan to be their new pilot. Prior to this, only charter members had been eligible.

At the May 1977 business meeting, the new president raised the question of perpetuating the *Golden Eagles* or of letting the last man out turn off the lights. Oddly enough, there were a few who thought it best to let the organi-

zation die. Nearly 98 percent were enthusiastically in favor of keeping the organization alive.

The new pilot was asked to appoint a committee to draw up a plan for approval by the membership. The committee included Paul Burbank, charter member and longtime United Airlines executive; Rear Admiral Hank Miller who, among other accomplishments, was liaison officer for the Doolittle raid on Japan; Vice Admiral Howard Greer, then ComNavAirLant; and VAdm. Streaan, the new pilot, as chairman and secretary.

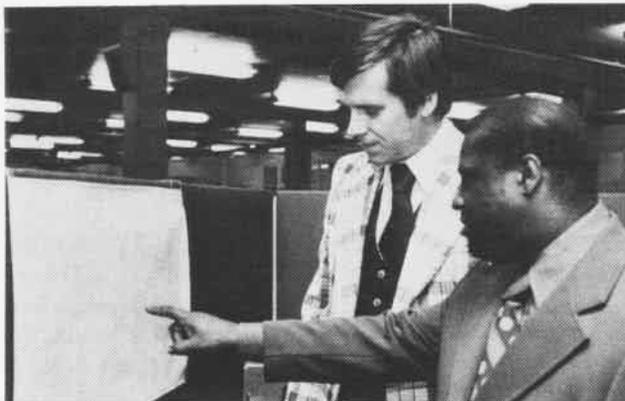
The committee met at NAS Brunswick, Maine, and worked out a plan for additional members to be selected by a committee patterned after the BuPers selection boards. Selection was to be made from among Naval Aviators who pioneered in new areas of Naval Aviation or who made substantial contributions toward its betterment — as pilots rather than administrators. The committee was mindful of the inspirational influence of a truly great Naval Aviator on a young flyer or student pilot. The plan called for the committee to review the list of Naval Aviators who qualified between WW I and WW II and to make their selection from this list. The new policy was approved by the members, with only one dissenting vote.

The first membership selection committee was composed of chairman Liv Ireland, Naval Aviator #84, a charter member who belonged to one of the Yale Units; Captain Tommy Tomlinson, vice president, former barnstormer and leader of the Navy's aerial stunt team, the *Seahawks*; Vice Admiral William Davis, also a member of the stunt team; RAdm. Miller and VAdm. Greer, with VAdm. Streaan as secretary.

The committee met at NAS Pensacola during the fall of 1977. Twenty-six prospective members were selected. The *Golden Eagles* will be around for many years, representing some of Navy's finest aviators and pioneers.



By Tom McNamara



The Naval Air Technical Services Facility (NATSF) had its beginning in 1954 when the Bureau of Aeronautics relocated its publications division in Philadelphia, Pa., as the Naval Air Publications Facility. It acquired its present name in 1958 when mission changes brought about increased responsibilities in the areas of maintenance reliability information, engineering drawings, ground support equipment data support, calibration procedures and technical directives. Still in its original location in northeast Philadelphia on the Aviation Supply Office compound, its civilian work force has grown from the original 49 to 303. The present mission involves management of the Naval Air Systems Command (NavAirSysCom) technical documentation program. This includes engineering drawings and technical directives and manuals.

Under the command of Commander Ronald W. Pyle, NATSF is a NavAirSysCom field activity. The commanding officer is double-hatted as the NavAirSysCom Technical Documentation Officer (Air-04A4) and reports to the Assistant Commander for Logistics/Fleet Support (Air-04). NavAir's technical documentation policy-making personnel were transferred to NATSF in January 1974 when major reorganization decentralized offices in the national capital region. A liaison officer remained in Washington, D.C.

Two years later, in October 1976, NATSF took over the technical manual verification program from the Naval Air Systems Command Representatives, Atlantic and Pacific.

With these two actions, establishing policy and procedures and checking the results, NATSF acquired cradle-to-grave responsibility for technical manuals. Archives responsibility, incidentally, had been NATSF's since 1971.

The primary function of NATSF is to provide the fleet with technical manuals and other documentation which contain procedures for the operation and maintenance of naval aircraft and equipment. This service, provided automatically to most naval activities, consists of evaluating, procuring and distributing maintenance manuals and indexes, technical directives, engineering drawings and work unit code manuals.

How does NATSF provide this service to the fleet? How does operation and maintenance information get to the man who really needs it?

The process begins when NATSF data management personnel sit down with contractors, Navy logisticians, and technical writers to hammer out details and procedures for new or updated technical manuals. The details include: writing of maintenance tasks as clearly as possible; determining the approximate number of pages in the manual and total production cost; and time needed. Data specialists in aircraft, missiles, avionics, airborne and ground support equipment, instruments and armaments integrate the technical data requirements for the various manuals needed for specific weapons systems. The manuals cover all types of naval aircraft at all maintenance levels and include detailed,

Above left, Cdr. Pyle (left) and Ernie Holt watch as Sylvia Greenberg operates microfilm viewer. Left, Bill Smith (left) and Henry Howard review P-3C update program.

step-by-step procedures for removal and replacement, troubleshooting and repair, and illustrated parts breakdowns.

NATSF maintains approximately 27,300 different technical manuals in NavAir's inventory; 750 new manuals a year are added for the Navy and, more recently, an additional 400 a year for nations participating in the defense security assistance program, foreign military sales. Another 600 manuals are revised each year; 3,200 are supplemented with change issues; and 1,700 are reprinted. Approximately 19,000 manuals are in paper format and 8,300 are now issued on microfilm under the maintenance information automated retrieval system (MIARS) program. Altogether there are over three million pages of technical data in the manuals.

In the technical manual distribution file, NATSF maintains 6,000 addressees, makes 1,500 changes a year to keep the file current, and changes the customers' requirements 1,400 times a year to meet needs.

More than 500 complete sets of manuals and technical directives are provided each year to new activities or those undergoing a mission change. Also there are nearly 18,000 research requests a year — from users who want to know the availability or status of a particular manual or, most frequently, which manual covers part number XXX? The acquisition, printing and distribution costs of technical manuals are big business. In FY 78 they will run well over \$90 million. An additional \$5.8 million will be spent updating out-of-production manuals.

The verification program was incorporated into NATSF as the foundation of a quality assurance (QA) department. While the technical manuals are being prepared, QA personnel perform in-process reviews with the contractor to assure proper development of the manual. They also monitor the contractor's validation program, which could be generally described as the contractor's check to ensure that the manual is accurate and clear.

The final step, prior to issuing a manual for general use, is to have fleet maintenance personnel conduct a hands-on verification, actually using the manuals in the performance of specific maintenance tasks. QA personnel coordinate the verification efforts and ensure corrective action is taken to eliminate defects. Since verification is accomplished at many locations, NATSF maintains a QA division in San Diego, Calif., and Norfolk, Va. Despite all these efforts, some discrepancies still remain until a mechanic or technician discovers them and reports them to NATSF via the technical publications discrepancy report system. The details of this system are contained in OpNavInst 4790.2A, The Naval Aviation Maintenance Program, Chapters 13 and 17 of Volume 2. Chapter 17 is especially important because it concerns discrepancies which might affect flight safety. When discrepancies are reported, NATSF initiates immediate action to verify and correct them.

In the case of publications supporting an aircraft weapons system no longer in production, NATSF data specialists manage and coordinate updating of the maintenance manual with engineers and publications experts at the naval air rework facilities and other field activities, such

as weapons centers and ordnance stations.

Two products that are prepared at NATSF and distributed to the fleet are the Technical Manual Indexes and the Work Unit Code (WUC) manuals. The WUC manuals provide numeric codes for identifying system or subsystem components, so maintenance actions may be fed back into the Navy maintenance and material management system.

As manager of the NavAir technical documentation program, NATSF participates in the introduction of new and innovative concepts. For example, MIARS, jointly developed by NavAir and NATSF, revolutionized the technical manual writing, storage and distribution systems. Under MIARS, several maintenance manuals can be provided on a single cartridge of 16mm microfilm. In addition to saving storage space and distribution time, MIARS has eliminated the requirement for maintenance personnel to spend long hours making page changes. Furthermore, it has lessened the temptation to "borrow" pages from paper manuals.

Another improvement in the format of maintenance manuals is the work package concept, which incorporates in one package all the steps required to perform a single maintenance task. This also reduces the need to research several books. (A certain amount of referencing is unavoidable.) A work package format is written into all new maintenance publications.

NATSF also participates in a Chief of Naval Material effort to make maintenance manuals more readable and understandable. A writer's guide has been developed which permits technical writers to determine the level of comprehension they are aiming at. Tests show that when the writer's guide is used, understanding and acceptance by the user increases.

A key member of the publication team, the Naval Publications and Forms Center, is located next door to NATSF. The Center stocks, packages, and mails to the fleet, either on automatic distribution or in response to special requests, all NavAir publications. Historically, the shelf stock has been sufficient to permit 98 percent of the orders to be filled immediately.

Other NATSF personnel manage the engineering drawings which are used by the naval air rework facilities and the Aviation Supply Office for manufacturing or buying spare parts. The NavAir engineering drawing repository consists of 4.5 million drawings represented on 6.5 million frames of microfilm mounted on aperture cards. NATSF reproduces and issues in the neighborhood of nine million cards each year. To cope with the volume, NATSF continues to perfect a computer system known as the engineering data management information control system. This system is intended to automate the drawing file and eventually transmit drawings if practicable.

NATSF takes pride in its Service to the Fleet. It maintains a customer service effort on a 24-hour basis to help resolve any problem concerning technical documentation. Calls coming in after normal working hours are recorded. The telephone numbers are autovon 442-2909, or commercial (215) 697-2909.

PEOPLE · PLANES · PLACES

Honing the Edge

VA-81 *Sunliners*, accompanied by an A-7E of VA-83 and an A-6E from VA-85, participated in a joint Army-Air Force-Navy close-air support exercise in Germany. During Operation *Flex Gold 78*, Navy pilots coordinated their efforts with AF tactical aircraft and Army forward air controllers.

Thirty-five students from Sunnyvale, Calif., attended Moffett Field's sixth summer school program at Orion University. Volunteers from NAMTraDet 1012 conducted lectures on basic ordnance, hydraulics, corrosion control, radar, digital fundamentals and navigation. Field trips and classroom lectures familiarized students with aviation career fields. ATC Tom Meadows and AX1 Dutch Teetz coordinated the program.

LCdrs. Mike Jaccard, HC-1, and Dan Hartley, HC-9, participated in the Weapons and Tactics Instructor (WTI) Course conducted at MCAS Yuma (*NA News*, September 1978, page 18). They returned to North Island as Navy's first helicopter WTIs.

Aircraft from VAs 81 and 83, VS-30 and HS-3 participated in NATO Exercise *Northern Wedding*. More than 40,000 men, over 200 ships, 22 submarines and in excess of 800 fixed and rotary wing aircraft from nine NATO countries deployed to the North Atlantic/Norwegian Sea to practice rapid reinforcement and resupply of Europe during wartime.

Sea Cadets

Nine Sea Cadets from the Joe Causino Division, St. Louis, Mo., completed a two-week training period at NARU Memphis this past summer. Five members participated in the aviation fundamentals AP school, NATTC Memphis, and received diplomas signed by Capt. Ray C. Smith, C.O. YN1 Tom Helton, Lambert Field Naval Reserve Center, and MS1 Walt Prescott, St. Louis Recruiting Command, supervised the group.

Anniversary

The *Dambusters* of VA-195 recently celebrated their 35th birthday. The Lemoore-based unit was commissioned as Torpedo Squadron 19 in 1943. As part of CVG-19 in WW II, it provided a strong punch in Adm. "Bull" Halsey's plan to "hit hard, hit fast, hit often." In Korea, flying the AD *Skyraider*, VA-195 destroyed the strategic Hwachon Dam, earning its nickname. James A. Michener's *The Bridges of Toko Ri* immortalized the raids made by VA-195 during the battle of Carlson's Canyon. The *Dambusters* made the first combat deliveries of the data link version of the T.V.-guided *Walleye* in Vietnam, bringing down the Ninh Binh railroad bridge.

Records

Cdr. Jay A. Hall, VF-151 C.O., made his 1,000th carrier arrested landing last summer. He is believed to be the only NFO to achieve this mark. The *Vigilantes*, embarked in *Midway* in WestPac, fly F-4J *Phantoms*.

Cdr. W. R. Westerman, CAG-7, who recorded his 1,000th trap aboard *Ike*, operating off the coast of Virginia, has become the first *Eisenhower* centurion.

One of the most experienced E-2 "back end" crews in the Navy flew together recently from *Forrestal* southeast of Sicily. They are (left to right): Cdr. Ken Denbow, VAW-



116 X.O., with 1,572 hours; AVCM "Daddy Shu" Shustek, senior E-2 flight technician still flying, 1,715 hours; and LCdr. Dan Allen, first NFO to exceed 2,000 hours in the E-2B, 2,288 hours.

The VA-37 *Bulls*, commanded by Cdr. R. J. "Rocky" Spang, have flown over seven years accident-free, including 35,000 flight



hours and 11,700 carrier landings. They received a CNO Safety Award for 1977 and a Meritorious Unit Commendation for 14 months in 1976-77.

VQ-4, Patuxent River, has amassed 59,535 accident-free flight hours while logging five years of uninterrupted round-the-clock ops. The squadron maintains a North Atlantic airborne communications relay system from specially equipped EC-130G/Q *Hercules* aircraft.

LCdr. A. Fields Richardson holds two distinctions as an A-7 pilot: 2,000 hours of flight time and the first military pilot to fly all versions of the aircraft. Now assigned to the Armed Forces Staff College, Norfolk, he was previously NavPro director of flight tests at Vought Corporation.

In an average day, VT-27 flies about 90 hours. But when this T-28 landed, the squadron counted 30,000 accident-free hours. Lt. J. E. Rogers and Ens. P. Norris logged the

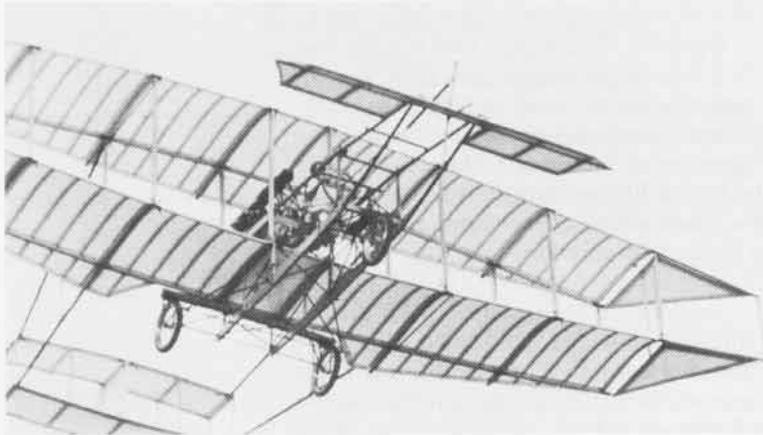


milestone while on a routine training flight. VT-27, part of TraWing-4, Corpus Christi, is commanded by Cdr. John S. Glaesner.

PEOPLE · PLANES · PLACES

Et cetera

A reenactment of the first flight of *June Bug II* on July 4, 1908, was sponsored by the Glenn H. Curtiss Museum and the Hammondsport Bicentennial Committee. Curtiss' original flight, from a field outside Hammondsport, N.Y., won him the Scientific American Trophy for the first pre-announced public flight in America of greater than one kilometer. That Curtiss aircraft incorporated ailerons and a tricycle



landing gear as we know them today, innovations which established his reputation in aviation. Lt. James W. Allen, MC, USNR, attended the event and reported it to *NA News*. "About 4,500 people watched," he said, "including an elderly lady who had been present at the original flight in 1908." (Photo of replica used in the 1978 flight courtesy of *The Leader*, Corning, N.Y.)

Cdr. George Zaludek, C.O. of VS-41, presented a \$1,000 contribution to the Naval Aviation Museum's building fund in memory of LCdr. Kenneth C. Ables III, who died in an S-3 crash earlier this year. Capt. Grover Walker, USN (Ret.), director of the museum, presented Cdr. Zaludek an In Memoriam plaque in acknowledgment of the gift.

NRL scientists, Drs. Dianne K. Prinz and John-David F. Bartoe, are two of four specialists selected by NASA as the crew of *Spacelab 2*. Only two of the four will actually fly on board the space shuttle, scheduled to carry *Spacelab 2* into orbit in 1981. The others will serve as backups.

VA-81 won the Golden Tailhook Award for the second time this year. The *Sunliners*, graded on landing performance and total squadron average compared with other air wing squadrons, scored a 3.4 average for the period ending July 22. Individual honors went to Lt. Steve Hallam.

Deputy Assistant Secretary of the Navy for Manpower and Reserve Affairs, Robert T. Connor, visited Jacksonville-based VP-62 while the squadron was on AcDuTra at



Roosevelt Roads. In an effort to "update his knowledge of the operational readiness of reserve squadrons," he attended flight crew

briefings and flew in one of the squadron's *Orions*. Connor is flanked by Cdr. Jack Hollister, X.O. (left), and LCdr. James E. Roberts, OinC.

Aboard *Enterprise*, Cdr. David N. Rogers, CAG-14, presented a CVW-14 plaque to Wing Commander David N. Rogers, C.O. of Royal Australian Air Force VI Squadron, RAAF Base Amberley near Brisbane. VI Squadron, flying F-111C fighter/bombers, provided simulated raids against *Big E's*



task group, including *Long Beach*, *Truxtun* and *HMAS Stuart*, during a combined U.S. Navy and Australian Air Force and Navy exercise in the Indian Ocean.

Navy's last P-2E, a DP-2E specially configured for airborne launch of the BQM-34A, is flying with VC-8 at Roosevelt Roads. LCdr. Martin Merrick, the only naval officer currently qualified as an Echo plane commander has flown over 2,500 hours in the P-2. AE3 Michael Lynch is the only enlisted man now qualified as an E model plane cap-



tain. VC-8 also operates four other *Neptunes*, TA-4J *Skyhawks* and SH-3G *Sea Kings*. C.O. is Cdr. Daniel M. Duda.

Change of Command

AsstComLogFltSupGru,NavAir: RAdm. Louis R. Sarosdy relieved RAdm. Cyril T. Faulders.

CNavRes: RAdm. Frederick F. Palmer relieved VAdm. Pierre N. Charbonnet.

ComTacWingsLant: RAdm. Thomas H. Replogle relieved RAdm. John C. Barrow.

ComTraLant: RAdm. Louis A. Williams relieved RAdm. Kenneth L. Shugart.

HS-9: Cdr. James A. Dennis, Jr., relieved Cdr. Lester R. Mabery, Jr.

Independence: Capt. Thomas C. Watson, Jr., relieved Capt. George M. Furlong, Jr.

NAS Brunswick: Capt. Benjamin T. Hacker, Sr., relieved Capt. George D. Barker.

NAS Oceana: Capt. Danny J. Michaels relieved Capt. Marvin G. McCanna, Jr.

RVAH-12: Cdr. O. P. Burch relieved Cdr. D. A. McRae.

TraWing-2: Capt. Michael G. Basford relieved Capt. Burke E. Eakle.

VA-86: Cdr. Bernard J. Smith relieved Cdr. Herbert W. Taylor.

VA-303: Cdr. Tom Gehman relieved Cdr. Al Talley.

VC-8: Cdr. Daniel M. Duda relieved Cdr. Ralph W. Chandler.



*A History of
Sea-Air Aviation*

*Wings Over
The
Ocean
part sixteen*

By John R. Lindley

Prior to the American involvement in Vietnam, U.S. Navy carrier forces had served in a variety of politico-military crises around the world. Admiral David L. McDonald lists 13 of these crises between June 1950 and December 1962 (in addition to the Korean War). Most notable were the Suez Canal crisis of 1956, the Jordan and Lebanon crises of 1957 and 1958, the Quemoy-Matsu conflict of 1958, and the Cuban missile crisis from October to December 1962 during which the carriers *Enterprise* and *Independence* helped enforce the missile quarantine on the Soviets.

The leaders of the U.S. chose to use carriers and their air arms in these various conflicts or crises because of their mobility and capability to project U.S. air power unilaterally into regions where land bases were limited or unavailable. Given this previous record of demonstrated usefulness and

generally favorable results, President Johnson's decision to employ tactical air strikes from carriers (following the Tonkin Gulf incident off the coast of Vietnam) was a logical extension of these earlier policies. The first air strikes from U.S. Navy carriers took place on August 5, 1964, when 64 jets from *Ticonderoga* and *Constellation* bombed PT boat bases around Vinh, North Vietnam, in retaliation for the PT boat attacks on the destroyers *Maddox* and *Turner Joy* the previous day.

U.S. involvement in the counter-guerrilla war in South Vietnam had begun long before the Tonkin Gulf incident and the resulting retaliatory air strikes, but prior to that time carrier air strikes had not seemed necessary. From August 1964 to February 7, 1965, when aircraft from the carriers *Coral Sea*, *Hancock* and *Ranger* flew reprisal raids following



Dawn over the Tonkin Gulf silhouettes jets on the deck of Oriskany.

the Viet Cong attack on the air base at Pleiku, South Vietnam, the principal mission of TF 77 aviation was reprisal strikes over the North.

Following the attacks on Pleiku, the air war speeded up and shifted emphasis from reprisal raids to systematic bombing of the North. TF 77 jets joined the Air Force and Marines in these strikes. In addition, carrier aircraft began flying air strikes against Viet Cong positions in the Mekong Delta region of South Vietnam while U.S. forces ashore built airfields in the South which were suitable for land-based tactical air operations. By July 1965 the U.S. Navy had five carriers in the western Pacific, with at least three operating at all times in the Tonkin Gulf, carrying out armed reconnaissance and bombing raids against North Vietnam.

Normally three attack carriers operated in the vicinity of an arbitrary

cartographic position in the Tonkin Gulf known as Yankee Station. They launched and recovered aircraft which flew almost daily raids against communist targets. Each carrier steamed independently of the others, but their flight operations were coordinated. Flight operations on Yankee Station normally lasted 12 hours. Then the carrier would have 12 hours for rest, repair and replenishment from the ever-present Service Force supply ships. With three carriers available for flight operations, planes from one of the carriers were always in the air unless weather conditions were unusually bad. In general the targets in North Vietnam were industrial and power facilities, plants, military installations, supply lines, bridges, boats, highways and trucks and other rolling stock.

Although the carrier forces of the U.S. Navy had never satisfactorily

solved the problem of night carrier flight operations during WW II or Korea, Seventh Fleet carriers in Vietnam had almost worked out a solution by the mid-1960s. Consequently they flew air strikes day and night trying to keep a constant pressure on the communist supply lines.

The Korean experience had also shown that jets demanded a phenomenal supply of fuel. Each jet sortie meant that the carrier had to spend another minute replenishing from a tanker and each three-ton load of bombs dropped meant a few more minutes alongside an ammunition ship. Thus TF 77 carriers frequently spent a substantial portion of their stand-down time alongside a Service Force ship, such as a fast combat support ship (AOE), which could transfer fuel oil, jet fuel, aviation gasoline, ordnance and refrigerated stores from any of 15 replenishment stations. In addi-

tion the AOE's had an embarked helicopter detachment which could provide vertical replenishment. Whether replenishment took place alongside or by air, the carrier and the AOE could carry out this operation at speeds up to 20 knots. Thus the flattop was never required to stray very far from her operating area in order to resupply herself and her air arm.

The U.S. Navy employed five different aircraft for attack carrier operations in Vietnam. A carrier of the larger, post-World War II *Forrestal*-class would ideally have an air group composed of 24 F-4B *Phantom II* fighters, 28 A-4E *Skyhawks*, 9 A-6A *Intruder* attack jets, 6 RA-5C *Vigilante* reconnaissance jets and 4 E-2A *Hawkeyes* for airborne early warning. The McDonnell Douglas F-4B *Phantom II* was a versatile twin-engine jet flown by a crew of two. Designed primarily for operating on supercarriers like *Forrestal* or *Enterprise*, the multipurpose jet had Mach 2.2 speed at 48,000 feet. The *Phantom II* carried no guns; its armament consisted

of *Sparrow* and *Sidewinder* missiles. The small Douglas A-4 *Skyhawk* is an attack jet widely used by the U.S. Navy and Marine Corps. Although it weighs only 9,853 pounds empty (in the A-4E variation), it can carry nearly 15,000 pounds of armament and bombs. Despite being the smallest jet combat aircraft in service, the *Skyhawk* has a speed of Mach 0.9 at sea level and can be fitted to deliver nuclear weapons. The other attack jet of the typical carrier air group in Vietnam was the Grumman A-6A *Intruder*. This twin-jet, two-man-crew aircraft carries conventional or nuclear weapons. With Mach 0.9 speed at sea level, it uses a complex digital computer system tied in with its radar, navigation and communications gear to locate targets day or night, in good weather or bad. North American's RA-5C *Vigilante* was the Navy's multi-sensor reconnaissance aircraft in the Vietnam War. Although originally designed for use in a long-range attack role, the *Vigilante's* Mach 2.1 speed at 40,000 feet makes it ideal for intelli-

gence gathering. The last major component of the typical attack carrier air wing was the Grumman E-2A *Hawkeye*. This queer-looking, twin-engine turboprop airplane carries a 24-ft. diameter radome over its fuselage. This radome was a key part of the Navy's airborne early warning system designed to detect enemy targets beyond the line-of-sight of surface ship radars. The *Hawkeye* carries a crew of five.

The U.S. Navy's carrier jets were not the only jets in the air over Vietnam. In addition to other friendly jet aircraft, there were Soviet-built MiG-17 and, later, MiG-21 fighters. Beginning in 1965, American jets began to tangle with these enemy planes. The *Phantoms* soon proved superior to both the MiG-17 and MiG-21 in aerial combat during the bombing campaign over North Vietnam. Most U.S. aircraft lost over North Vietnam were shot down by conventional anti-aircraft fire. Most of the American jets used over the North were vulnerable to ordinary anti-aircraft fire because they





A HAL-3 helo flies over abandoned Viet Cong village on the Cua Lon River.

had been designed for high-speed combat at high altitudes against enemy aircraft which might be missile equipped. Thus these Navy and Air Force jets often lacked the protective devices which had helped American planes survive damage from Japanese anti-aircraft fire in WW II. Soviet MiGs and surface-to-air missiles (SAMs) accounted for all other losses over the North. For any American plane damaged over North Vietnam, safety lay out to sea. Once over the Tonkin Gulf, aircrews knew they could ditch in the ocean with a fair chance that they would be rescued by the ships or helos of TF 77.

By the fall of 1966, U.S. Navy and Air Force attacks on North Vietnamese targets had reached 300 per week. Strikes against targets near the North Vietnamese capital of Hanoi and the chief port of Haiphong, as well as missions near the Red Chinese border, raised the level of bombing considerably in 1967. That year the bomb tonnage dropped on the North in one month exceeded the 80,000-



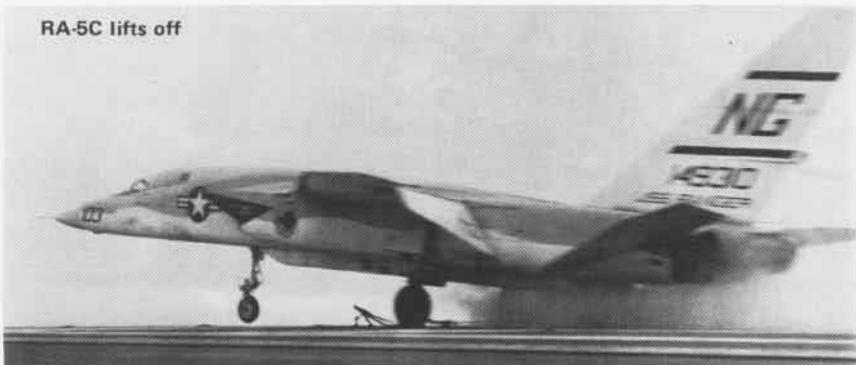
Bombing run, 1967



A-4 and F-4 leave Kitty Hawk.



VA-35 Intruder



RA-5C lifts off



Yorktown comes into Sasebo, Japan, as Bennington crewmen watch.



Death of a MiG

tons-per-month dropped on German-controlled Europe in WW II (29,000 tons per month were dropped on Japan and 17,000 tons a month on North Korea). *Intruders* and *Skyhawks* from the Navy's carriers regularly hit bridges, rail lines, warehouses, factories, POL storage tanks, port facilities, truck convoys, trains and the like in an attempt to stop the production of war material and disrupt the economy in North Vietnam. But these sorties failed to halt the communist infiltration of South Vietnam. Consequently, on March 31, 1968, President Johnson halted all bombing strikes north of the 20th parallel in an effort to get peace talks under way in Paris. With the cessation of bombing north of the 20th parallel, carrier strikes hit the southern panhandle of North Vietnam, trying to stem the southern flow of supplies.

Carrier aviation was not the only seaborne aviation fighting the communists. When 7,000 Marines hit the beach at Da Nang in March 1965, they brought with them helicopters and the techniques of vertical assault.

Vertical assault, or invasion from the sea by helos, was the product of U.S. Marine Corps and Royal Navy and Marine development. The U.S. Marines wanted a faster way to hit the

beach than was possible with conventional horizontal or over-the-beach assault. They began working out the techniques of vertical assault by helos after WW II and tried them in Korea. Similarly, when an Anglo-French task force occupied the Suez Canal area in October-November 1956, 22 helos from the British light carriers *Ocean* and *Theseus* landed 415 Marines (on November 6), who helped seize the canal.

These combat tests in the 1950s of the concept of vertical assault demonstrated that it was most effective when used in combination with regular over-the-beach assault. When used alone, vertical assault could not deliver enough men and was too vulnerable to defensive fire. When combined with horizontal assault, vertical envelopment had the advantages of tactical surprise and the choice of a landing area that might be behind enemy defenders. This allowed for attack from two directions. And the wide dispersal of amphibious force ships presented less of a target to defensive fire.

The landing of U.S. Marines at Da Nang in March 1965 was the first major American commitment of ground forces in Vietnam. By 1969 the Marines had made more than 60 amphibious landings along the coast of South Vietnam. Many of these landings were made in an attempt to use surprise and concentrated force to clear Viet Cong strongholds; others established permanent beachheads. In either case, the Marines often received close air support from their own tactical aircraft flying from land bases, just as they had in Korea.

The principal helicopters employed in vertical assault and other helicopter operations in Vietnam were the UH-1 *Iroquois* (*Huey*), the AH-1 *SeaCobra*, the CH-46 *Sea Knight*, and the CH-53 *Sea Stallion*. The *Huey* is a helicopter gunship which carries a crew of two and up to seven passengers. It was used for troop transport, medevac, and utility. The *SeaCobra* is another gunship with a two-man crew used only in an air support role. The *Sea Knight* is a troop or cargo transport which has a two-man crew and can carry between

25 and 33 Marines. The *Sea Stallion* is a large helo capable of lifting up to 16 tons of cargo or 38 Marines. It has a crew of from three to six.

To facilitate vertical assault and to provide a seagoing base for Marine helos, the U.S. Navy has gradually developed a new type of amphibious assault ship (or, as the British call it, commando carrier). When the Marines began experimenting with helos in the late 1940s, they operated their rotary-drive aircraft from escort carriers. As the WW II escort carriers were scrapped or mothballed, the Navy replaced them with new ships designed specifically for amphibious operations requiring helicopters. Today an amphibious assault ship like the 16,000-ton *Iwo Jima* (completed in 1961) provides an afloat base for 9 large and 20 small helos and 2,100 troops.

When U.S. military forces in Vietnam halted bombing of the North on March 31, 1968, they increased their efforts to cut off communist infiltration and supply routes in South Vietnam. But air power alone, whether from carriers or land bases, could not halt the infiltration and overland supply. Even the aerial mining of Haiphong Harbor in May 1972 and a full-scale bombing campaign in late 1972 failed to provide the South Vietnamese military with the support necessary for defending their country. Thus the U.S. signed a truce agreement with the North Vietnamese in early 1973 and began a phased withdrawal of all U.S. forces from the South. Although the non-communist South Vietnamese government tried to keep the pressure on the communists following the American withdrawal, they were unable to stop a North Vietnamese invasion in the spring of 1975. The communists captured Saigon, the South Vietnamese capital, on April 29, 1975, thereby permanently ending the communist and non-communist division of Vietnam with the establishment of a single Vietnamese state under the control of the Hanoi government.

The Vietnam War was a small unit war in which conventional military tactics were sometimes ill-adapted to fighting in the jungle or Mekong Delta

areas. Like Korea, the war in Vietnam did not have any great fleet or air battles. Naval Aviation, primarily carrier air strikes and helicopter vertical envelopment, played a primary role in the war just as it had in Korea. Similarly, air power in Vietnam was most effective when employed in conjunction with ground operations. Lengthy and repeated experience in Vietnam showed that the mere possession of and ability to operate vast carrier air and helicopter forces could provide local command of the air; but local command of the air and the ability to strike communist military and industrial targets were not enough to maintain the independence of South Vietnam.

In Vietnam, as in Korea, the United States once again chose not to use nuclear weapons or, with the exception of the Cambodia invasion, to widen the war by attacking the sources of communist supplies outside of Vietnam. Having decided not to use nuclear weapons, American leaders seemed to expect that the bombs dropped from Navy, Air Force and Marine Corps jets would provide a favorable outcome. That was not the case. Undoubtedly there are many reasons, one being a fundamental confusion concerning the role of the airplane. The airplane is a vehicle of transportation. As a commercial vehicle, it carries cargo or passengers. As a military vehicle, it is used to deliver various kinds of weapons: bombs, rockets, missiles. Many persons believed that the airplane could force the communists to submit to the United States. In doing so, they confused the airplane as a vehicle of transportation with the weapons it carried. This was as if the Greek myth-makers had confused Pegasus with the sword or lance which Bellerophon had used to kill the Chimaera. Pegasus gave Bellerophon an advantage in fighting the Chimaera, but the Greek youth still had to fight the monster himself. Pegasus, his vehicle of transportation, could only provide Bellerophon with a favorable advantage in combat. The winged horse could not by itself supply victory; only Bellerophon could do that.

(Continued)

letters

Patches

I am a 14-year-old boy and I collect naval aircraft photographs, patches and decals of U.S. aircraft squadrons.

I cannot find any more patches on the base where I live, so I would appreciate any patches, decals or photographs anyone can send me.

Michael J. Mawn
Qtrs. N, NAS North Island
San Diego, Calif. 92135

I am 17 years old and have been interested in Naval Aviation for most of my life. Of particular interest are Naval Air operations in the Korean War. I have been trying to find flight gear, maps and squadron patches of that era, but have had little success. If any of your readers have any of these items that they no longer have a need for, I would appreciate having them.

Cameron Holbrook
1348 Pinebluff Rd.
Winston-Salem, N.C. 27103

I have collected a large amount of aviation literature and now I would like to start collecting items for my bulkheads and for display at the local Navy recruiting office. I would appreciate patches, decals, pictures and posters of U.S. Navy aircraft squadrons and ships. I am particularly interested in squadron patches.

John D. Comstock
P.O. Box 802
Stillwater, Okla. 74074

Not an Oops!

I would like to take this opportunity to thank you for the countless hours of pleasure that your magazine has afforded me.

Included in that pleasure is the article in the May edition "The Fleet Angels Have Taken Wing." I did notice a possible error on the caption on page 29. On the RF-8 and background A-4s, I couldn't help but notice America's AE designation on the tail markings.

Please continue your superb efforts in making this an outstanding publication.

Robert F. Claire, AE2
VAQ-137
FPO San Francisco 96601

Ed's Note: Many thanks! According to our records, the AE air wing at one time served aboard *Enterprise* in the 1960s.

Special Patch?

As a member of VMFA-112, the Marine reserve F-4 outfit based at NAS Dallas, I recently went over the 1,000-hour mark in type.

This, perhaps, is not an achievement worthy of publication, but then I realized I had never landed at, taken off from or flown over MCASs Beaufort, Cherry Point or El Toro in the F-4. Now that, I figured, was worth something — maybe a special patch or a white virgin ribbon.

Are you aware of any other Marine types who could qualify in this magnificent group?

Randy Harper, Capt., USMC
3848 Blue Trace
Farmers Branch, Texas 75234

Ed's Note: We aren't, but perhaps a reader is.

Get it Right!!

On page 4 of the July 1978 issue you listed the recipients of the 1977 CNO Safety Awards. Among those listed was RVAH-120; we believe that this should read RVAW-120.

RVAW-120 received the 1977 award and is extremely proud as it marks the first time the East Coast RAG has successfully competed for the coveted award. Our maintenance force works around the clock to provide aircraft that routinely fly more hours and log more traps than our fleet squadrons. Continuous operations are conducted with flight and ground crews under instruction. We feel that this environment

requires intense efforts to sustain safe operations. Our hard working troops are afforded little enough opportunity for Navywide recognition and, accordingly, we feel that the record should be set straight.

G. M. Witzenburg, Cdr.
X.O., RVAW-120
NAS Norfolk, Va. 23611

Ed's Note: Our apologies.

Collector

I collect WW II and postwar recognition ship models (usually mounted on blue boards in gray wooden boxes), plastic recognition aircraft models (with ID information under fuselage or wings), ship and aircraft recognition manuals, and WW II Jane's *Fighting Ships*. The models were made under contract for the Navy and other service branches as recognition training devices. I am interested in corresponding with anyone who may have some of these items and is interested in selling them.

J. Maccubbin, LCdr., USNR-S2
165 Blossom Hill Road, #307
San Jose, Calif. 95123

Reunions

USS *Philippine Sea* (CV-47) personnel are planning a 1979 East Coast or 1980 West Coast reunion. For further information contact A. G. LeBaron, Box 668, Moulton, Ala. 35650.

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Home-based at NAS Oceana, Fighter Squadron 41 is led by Cdr. David W. Hoffman. In July 1977, the Black Aces became the first F-14 squadron to carrier on Nimitz (CVN-68). As part of CVW-8, their primary role is to intercept and destroy enemy aircraft and missiles in all weather conditions. The official squadron insignia portrays an ace riding the clouds and gleefully searching for a target upon which to expend its rocket. The playing card is a variation of the squadron's tail markings.

