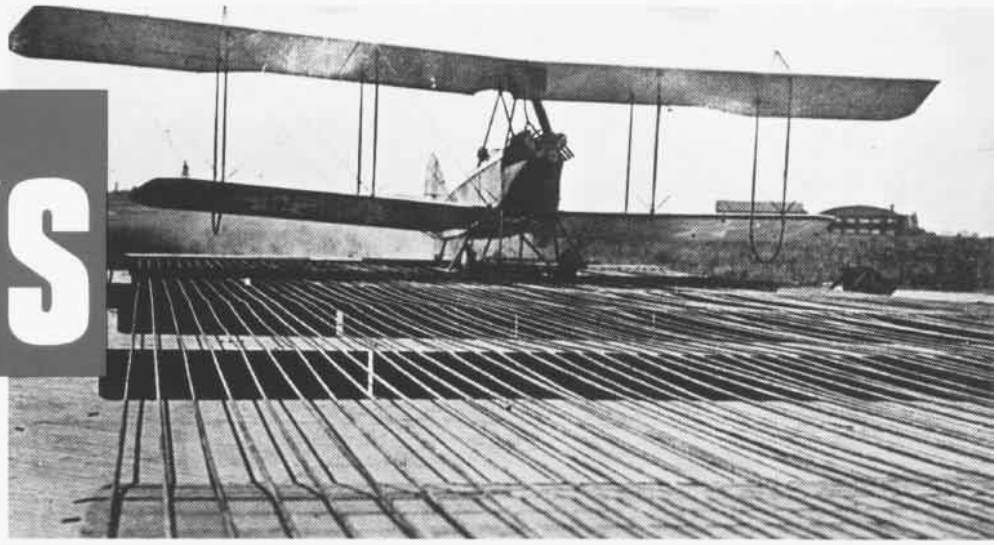
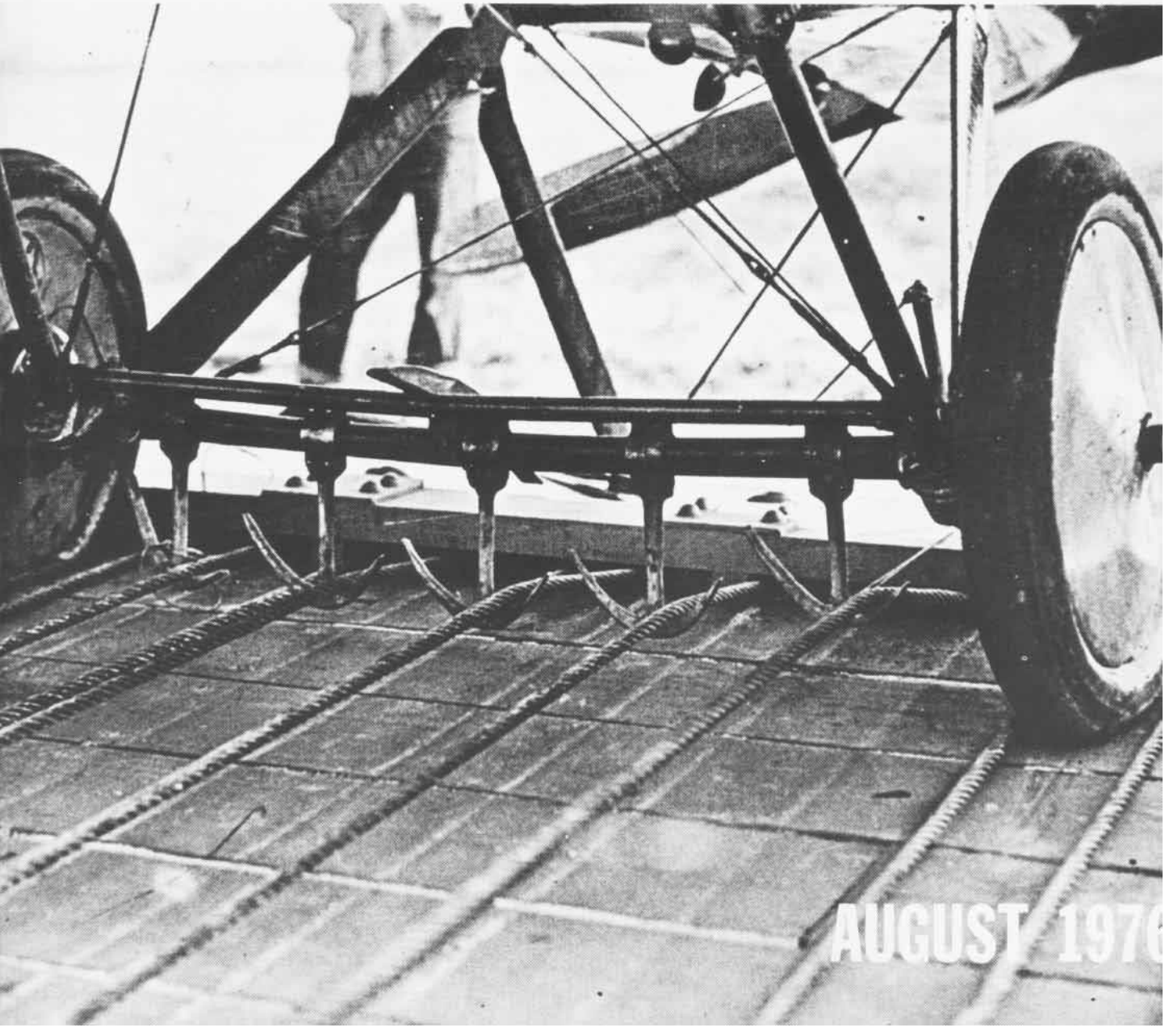
NAVAL AVIATION

NEWS





AUGUST 1976

NAVAL AVIATION NEWS

FIFTY-EIGHTH YEAR OF PUBLICATION

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Deputy Chief of Naval Operations (Air Warfare)

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Commander, Naval Air Systems Command

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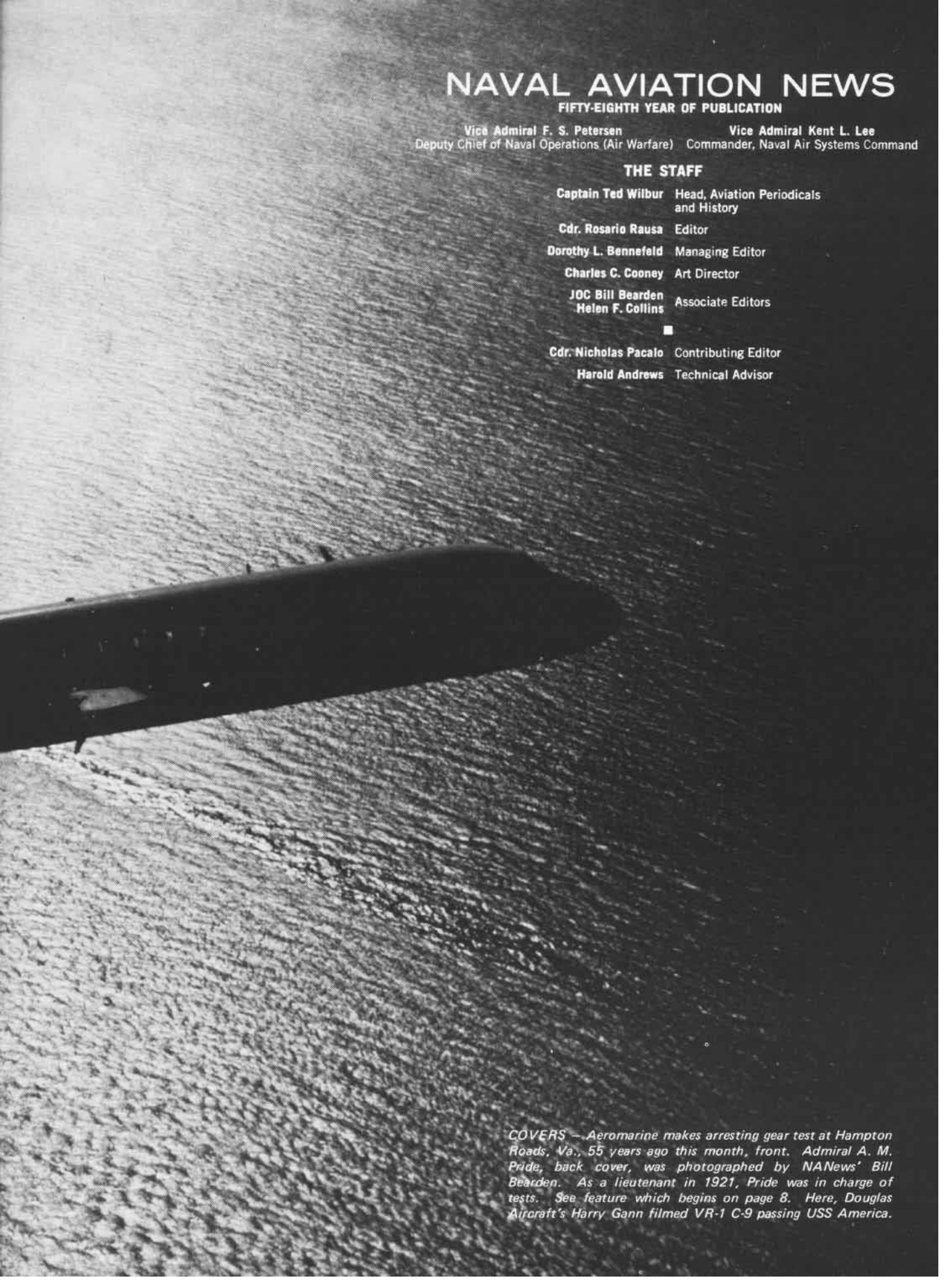


COVERS — Aeromarine makes arresting gear test at Hampton Roads, Va., 55 years ago this month, front. Admiral A. M. Pride, back cover, was photographed by NANews' Bill Bearden. As a lieutenant in 1921, Pride was in charge of tests. See feature which begins on page 8. Here, Douglas Aircraft's Harry Gann filmed VR-1 C-9 passing USS America.

Hellcats and Bow Traps

Prior to becoming an intrepid Naval Aviator, I trod the decks of a destroyer which spent no mean amount of time in the plane guard position. It was from that vantage point I observed many and varied carrier approaches, some quite novel. During that time and in the years after flight training, I was never privileged to see a bow approach such as the one shown in progress on the inside cover of the May 1976 issue. This is to say that to some of your readers the situation is unique. While the picture itself is certainly worth ten thousand words, it is also worth an additional hundred or so by way of explanation.

Together with that explanation, you might also give us a count of the letters received telling you that your TBF is actually an F6F.

A. T. McKinney, Cdr., USN (Ret.)

Ed's Note: About a dozen. Plus a few phone calls.

No Way! is that a TBF making the "down the throat" landing on *Yorktown*. An F4F *Wildcat* or, remotely, an F6F *Hellcat*, but the stubby wings point toward the F4F.

Walt Callaway, PO1

Once in awhile I feel we all need a little correcting. Your time has come. You identify the aircraft making a bow landing on the *Yorktown* as an *Avenger*. Untrue. That aircraft is, in fact, an F6F *Hellcat*. The dead giveaway is the landing gear. They're too far apart to be those of a Turkey Bird. The other giveaway is the lack of a ball turret on the upper fuselage just aft of the cockpit.

James S. John, GMM2

It appears that the said *Avenger* has been cleverly disguised as a *Hellcat*.

W. F. Walker, CTO1, USNR-R

If that's a TBF making a bow approach on *Yorktown* I'm an F6F *Hellcat*.

Jeff Davis, Cdr.

The aircraft is an F6F not a TBF. This made us examine the picture a little more closely. I believe the ship is not *Yorktown*, but *Essex*, which was the last ship equipped with bow arresting gear.

M. K. Geroe, LCdr.

Best you run and hide. Turkey Drivers of the World and Hot Hellcat Heroes will all be after you for calling the F6F making the eyeball-to-eyeball pass at the carrier a TBF. It is a great picture and in keeping with the other great pictures of the Anniversary Edition. A great edition it is, but a Turkey it ain't.

F. C. Gilmore, Capt.

I wonder how many readers of the May 1976 issue will tell you that you failed in recognition? That TBF making a bow approach to *Yorktown* is clearly an F6F.

Donald L. Kirby, Capt., USNR (Ret.)

Gotcha!! Inside front cover looks more like an F6F than a TBF as indicated in credits.

Bill Tvede, Jr.

Even Marines know that the venerable fighter pilot approaching the bow of USS *Yorktown* is indeed flying an F6F *Hellcat* . . . not a TBF *Avenger*. By the way, how did he do?

Jack L. Teed, Col., USMC

Ed's Note: (OK) LIG #5.

If you take another look, you will find it's an F6F vice TBF.

M. L. Voigt, AWC

I'll admit that I'm totally confused about the picture of the carrier on the first two pages. But, in the million to one chance that no one else has asked this question, why is the carrier backing down to recover an aircraft on the bow? Please don't say I just answered my own question. I would really like to know.

R. E. Adair, LCdr.

About that bow gear. It was installed for emergency recoveries in the event the aft area sustained battle damage or was crowded with parked airplanes — presumably the case in the controversial photo (above, left). Carriers with bow gear were required to back down as fast as they could go forward. Ship engines, propeller shafts and propellers were severely taxed during these reverse recoveries. The first bow arrested landing reportedly occurred aboard USS Ranger *(CV-4) on June 21, 1934, less than a month after she was commissioned.*

Fortunately, there was minimum need for such traps and on July 22, 1943, the Vice Chief of Naval Operations approved removal of bow arresting gear from the carriers. Generally, with the exception of CV-1, USS Langley, *attack carriers commissioned before that date had bow arresting gear. It was the Mark 3 type with six to seven cross-deck pendants, although one reader reports he's seen one flattop with 11 cables across the forward end of the flight deck.*

We will continue to examine the phenomenon of bow arresting gear and will report revelations of significance. In the meantime we'd love to hear from anyone who has made a bow arrestment.

By the way, we maintain the ship was Yorktown, *not* Essex. *And about that TBF. It* was *a* Hellcat. *We blew it.*

That's USS Wasp *(above, right) in 1942 with what appears to be arresting wires across a portion of the bow.*

NAVAL AVIATION NEWS did you know?

AH-1T SeaCobra

The AH-1T, first pre-production model of the improved Marine AH-1J *SeaCobra*, made its initial flight recently and is undergoing intensive flight tests at Bell Helicopter Textron. It will be turned over to the Navy for further testing in October. A second model is scheduled to enter testing late in the summer. Bell is under contract to modify two AH-1Js and build ten

production AH-1Ts. The new version offers an improved payload of 4,392 pounds over the present 2,739. Maximum gross weight of the AH-1T is 14,000 pounds compared to the AH-1J's 10,000. Deliveries to the Marine Corps are scheduled to begin in October 1977.

Fiber Optics

Lockheed-California Company is testing fiber optics along with a highly-sophisticated, self-powered digital communications link for use in military aircraft. The self-powered source used to link the glass fiber to standard wiring is an innovation. Without the necessity of an outside power source, the Lockheed system converts the electrical signal from standard wiring to the optical signal carried by fiber optic material.

Fiber optics is a method of transmitting visible or infrared light signals through nonmetallic cables of either plastic or glass. Use of such materials reduces weight and eliminates electromagnetic interference while providing durability and safety. Research indicates that replacement of standard wiring with fiber optics on major cable links in the P-3 *Orion* saves 300 to 500 pounds. Any reduction in aircraft weight reduces landing speed, and increases the range, maneuverability and payload. During testing phases Lockheed has converted information normally requiring 68 wire cables into six fiber optic channels without loss of signal.

With fiber optics, a light beam is piped through a glass or plastic strand with none of the outside interference common with signals carried through wires. Glass with its resistance to high temperatures eliminates fire hazards. Its non-conductive characteristics exclude short circuits. In addition, glass is not subject to corrosion or water damage. Research is continuing at Lockheed into the maintenance and test support equipment needed in using fiber optics.

Photographic Instrumentation Pod

When Doug Browning and his crew in NATC's Technical Support Directorate at Patuxent River set out to update the system for putting cameras on NATC planes, they hoped for a noticeable improvement. The improvement went far beyond anything they anticipated. In the past, the operation sometimes required a major rewiring job taking three or four days. Now they simply attach a photographic instrumentation pod resembling a big bomb, plug in one wire and everything is go. It disconnects just as easily. The pod is entirely self-contained with its own power pack, and can be quickly fitted to almost any aircraft.

It also allows an extra margin of safety for the pilot. Says Browning, "By

Missile Test Program

A joint Navy/Air Force air-to-air missile test program is being established to evaluate new concepts in techniques and technologies and to identify, if required, a common missile system that would replace the *Sidewinder* in the 1980s. The program is divided into two independent programs, air intercept missile evaluation and air combat evaluation. Actual flight testing is scheduled to begin in the fall at Nellis AFB, Nev., under the overall direction of Defense Research and Engineering. The air combat maneuvering instrumentation range system at Nellis will be used for the testing which will involve Navy F-14s and Air Force F-15s in mock aerial dogfights with simulated aggressor F-5Es. Computers will monitor the mock combat and assist in identifying "killed" aircraft. They will also reveal the relative utility and effectiveness of the system tested.

Crystal Ball?

Naval Air Test Center, Patuxent River engineers have devised a method of reaching ten years into the future and "interviewing" pilots who will be flying the F-18s. After listening to their complaints and suggestions, the engineers can zip back to 1976 and apply what they've learned as the F-18 moves across the drawing board. The sneak preview of the future is possible because of a program called advanced integrated modular instrumentation system. The time machine which zips them to and from the 1980s is an old UCAF jet trainer, a Calspan NT-33. The Air Force called it a T-33 and the Navy flew it as a TV-2 and T-33B. The NT-33 is a modified version with variable stability so that it can simulate the flight characteristics of almost any jet aircraft.

The program manager at the Systems Engineering Test Directorate, Fred Hoerner, says, "We can tell the display system that it is in an airplane such as the F-18 which hasn't even been built yet. We can use it as a display evaluation flight test (DEFT) vehicle which will allow us to make hands-on, real-world evaluations of any integrated cockpit display system prior to the Navy's production commitment.

"We will record exactly how the pilot performs in the F-18 and how easily he grasps the visuals presented by the integrated display system. Normally this information could be gathered only after the aircraft had been in the fleet for awhile because it's hard to measure an intangible except through repeated performance. What we intend to do is give the pilot a mission segment such as air-to-ground, air-to-air, altitude tracking, landing or something like that, and then measure how he performs relative to a given set of parameters. Then we can modify those parameters and see if he performs any better. It means that we can measure a pilot's performance, not just what he thinks of a display system." Hoerner feels that NATC's ability to look into the future via DEFT will indicate just what pilots want and need to see on the hardware. The Naval Air Development Center can then respond to those requirements as it develops display systems for future aircraft.

Low-Angle Tracking Radar

A new millimeter wavelength, precision monopulse tracking radar system funded by NavAirSysCom has been designed by a team of Naval Research Laboratory scientists, following the success of an experimental radar they had previously built. The experimental piggyback system, with the X-band dish mounted on top of the K_u-band antenna, successfully tracked aircraft at 100-foot altitudes to 15-nautical-mile ranges with negligible elevation errors. The new design (TRAKX, tracking radar at K_u- and X-band) calls for the K_u- and X-band monopulse antennas in the piggyback version to be combined into a single unit for range instrumentation application at missile sites.

The single unit provides a compact, high-servo performance antenna system which can be computer controlled from a small central control unit. The dual-band tracking system uses a mobile *Nike/Hercules* precision pedestal with a shelter that can be mounted on a truck bed for transporting.

The NRL team says their tracking radar will offer several improvements and extend capabilities for missile and training range radars, the major improvement being in low-altitude target tracking. TRAKX will be tested at Patuxent River when the engineering prototype is completed.

grampaw pettibone

Lock-On

A pilot was on a cross-country flight in a TA-4J *Skyhawk*. He had considerable experience in the aircraft with over 1,000 hours in type. All pre-departure phases were normal.

The initial portion of the flight was routine with weather as briefed. When the pilot reached his destination, he began a tacan approach. Upon reaching minimums he did not have the field in sight. He executed a missed approach and requested clearance to another airport.

There, he requested a GCA and a short-field arrestment due to the short, wet runway. The weather was 400 broken, 700 overcast with fog and light drizzle. The winds were 12 knots with gusts to 18.

On the last part of the GCA and just prior to acquiring the runway, the pilot was advised he was "slightly below glide path." Shortly after breaking out, he noted a 1,200-1,500 fpm rate of descent and added power. He stated that he clearly saw the runway area and mirror, but could not see the ball. Witnesses stated later that the aircraft appeared to come down hard. The *Skyhawk* landed short of the runway, engaged the arresting gear off center and left the runway. The nose gear sheared off and the IFR probe separated from the aircraft. The pilot shut down the engine and egressed normally. The aircraft sustained major damage.

Grampaw Pettibone says:

Well, bust my britches!! This is one for the book. Here's a gent with lots of experience and a good reputation who commits one of the most amateurish accidents — landing short!

This driver was so preoccupied with crosswind, line-up and other related factors that he let his scan go to heck! Once he realized he was coming down *fast*, he added power. But it was too late. Gents, you can't "lock-on" just a few items in this business. You've got to include all related items in the big picture.

Which Handle?

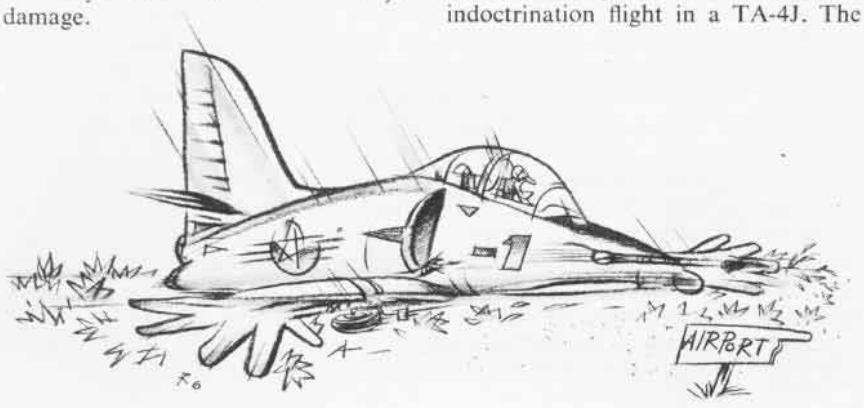
A Marine Aviator was scheduled as an instructor pilot for a midshipman indoctrination flight in a TA-4J. The passenger/midshipman had received numerous briefings on the aircraft. The function of the canopy jettison handle and its safety pin was particularly emphasized. Additionally, prior to putting on the flight gear, another instructor briefed him (and others) on the *Skyhawk's* equipment and procedures.

The passenger and the instructor then proceeded to the aircraft. The instructor briefed the midshipman on the flight plan and the function of various aft cockpit switches, including the canopy jettison handle and its safety pin.

After preflight, the instructor checked the aft cockpit ejection seat. He then grasped the canopy jettison safety pin and told the midshipman, "This is what I want you to take out when I ask." At this time, the midshipman strapped in the aft cockpit assisted by a student pilot assigned to help and to answer any last minute questions. The assisting pilot then removed the canopy jettison handle safety pin, showed it to the midshipman, and told him that the canopy jettison handle would blow the canopy if it were pulled in an emergency. The assisting pilot then properly stowed the safety pin in the right-hand map case.

After a normal start, the instructor told the midshipman to raise the ejection seat head knocker (ejection control safety handle) and to remove the canopy jettison safety pin. He replied that the pin had been removed.

Post-start checks and taxi were routine. In the hold-short area, the canopy was lowered and locked and the pretakeoff list completed. The instructor then asked the passenger if he was ready to go. The passenger enquired if he should remove the canopy jettison safety pin, to which the instructor replied, "Hadn't you taken it out before?" After a negative response, the instructor replied, "O.K., take the safety pin out." At this time the passenger pulled the canopy jettison han-



ILLUSTRATED BY Osborn

dle, which jettisoned the canopy. The aircraft sustained minor damage requiring 250 man-hours to repair.

Grampaw Pettibone says:

Great gallopin' ghosts! I don't believe this one! First of all, everyone briefs the lad in the back that "he is the one who will pull the canopy jettison safety pin" and then one of the assisting student pilots does it for him! So, the lad in the back knows he has to pull some handle — and he does!

Talk about confusion — let's get together and decide *exactly* who is going to do *what*. Talk about surprises!!

Fuel Problem = Wheels Problem

A Marine pilot was scheduled for a cross-country flight to position his AV-8A *Harrier* at a deployment base. The pilot was to fly wing on another aircraft. The *Harriers* were scheduled for aerial refueling en route. The pilot had over 150 hours in the aircraft. Brief, preflight, taxi and takeoff were normal.

Approximately 20 minutes prior to the first scheduled inflight refueling, the wingman's port low level fuel warning light came on and remained steady. Fuel indication was 750 pounds port and 1,350 pounds in the starboard tank. The pilot determined that there was sufficient fuel left to rendezvous with the tanker and still be able to make his scheduled divert field should refueling not be accomplished.

He gassed up and the flight proceeded to the second inflight refueling point. The subject *Harrier* arrived at the second tanker indicating 700 pounds port and 1,250 pounds starboard. The port low level light was illuminated. The second inflight refueling was accomplished and the flight proceeded to its destination.

The pilot had not, up to this point, attempted to conduct a gauge check to ascertain his exact fuel transfer condition. At 100 nms from his destination, he again experienced a port low level fuel light illumination and was indicating approximately 750 pounds port and 1,300 pounds starboard. He determined that he would arrive at the field with about 1,300 pounds of useable fuel.

He was given the lead, after which he balanced his fuel. He had approximately 700 pounds per side and both low level fuel warning lights were illuminated when he began a descent from a distance of 75 miles. Ten miles from the field, it was determined that the pilot had sufficient fuel for a VFR entry. The lead was passed back to the original leader and the flight proceeded to the VFR initial point.

The leader attempted to contact the tower but was advised his transmission was garbled. The second *Harrier* pilot reported that the flight was at the initial. Five seconds later another transmission was made that indicated a green light might be required for landing. The tower controller acknowledged this but was uncertain as to which aircraft required the green light. He instructed one of his assistants to provide a green light to both AV-8s.

Approaching the field, the wingman lowered full flaps, retracted the speed brakes and noted that his fuel now indicated 1,100 pounds port, 600 pounds starboard. The starboard low level light was still illuminated. He stated later that, at this point, he became concerned about the fuel imbalance. He was now approaching the 180 position and decided to make a rolling vertical landing at 90 knots.

At the abeam, there were numerous radio transmissions being made by the tower to the other AV-8 and other VHF-only aircraft.

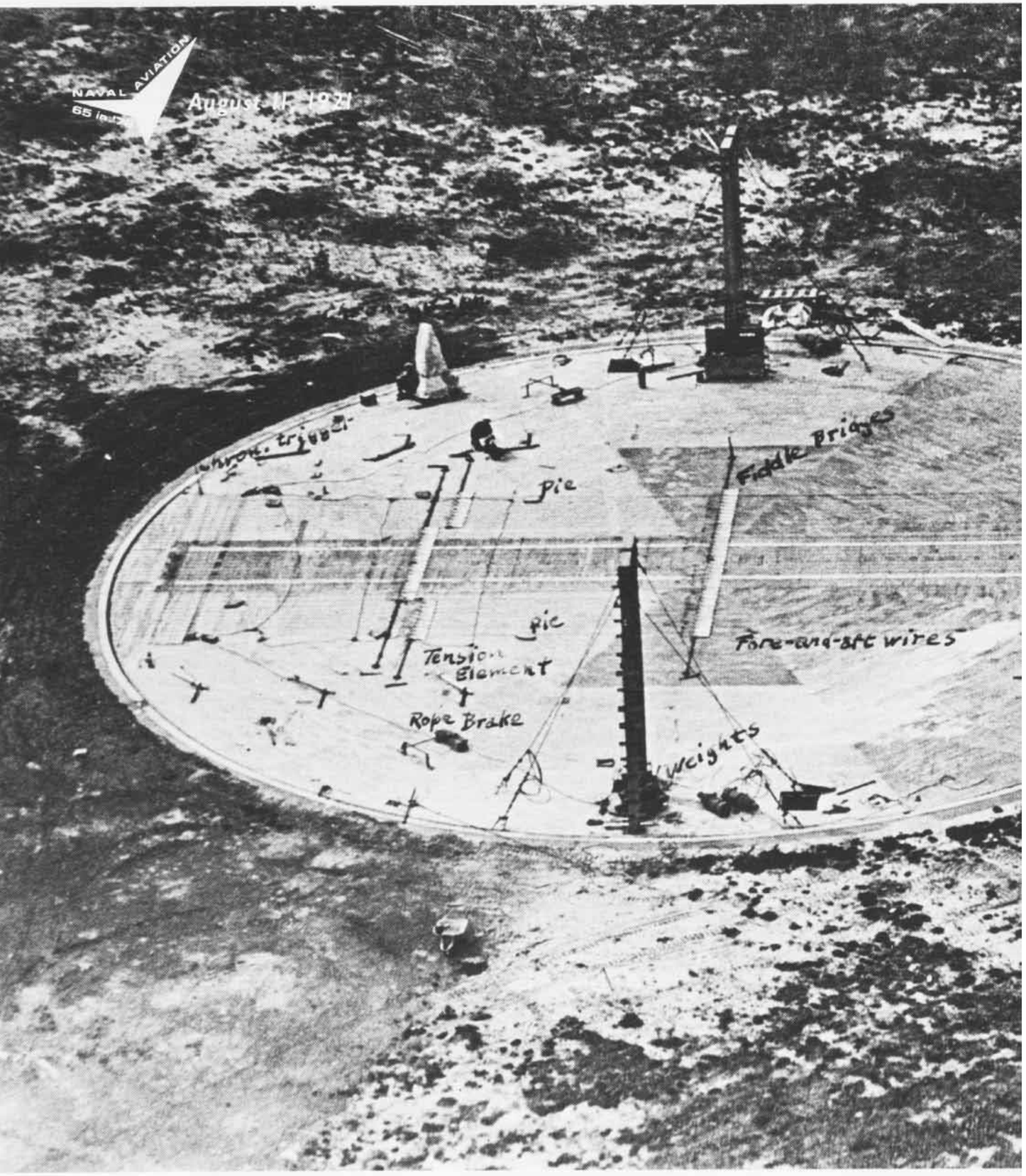
The pilot did not make the standard 180 call prior to commencing his approach because a tower transmission had stated, "AV-8 turning final, cleared to land 03 left, winds calm." The tower was giving a green light to both planes. The pilot continued to a point 4,000 feet down the runway, just beyond the arresting gear. His altitude over the approach-end/wheels-watch position was approximately 250 feet.

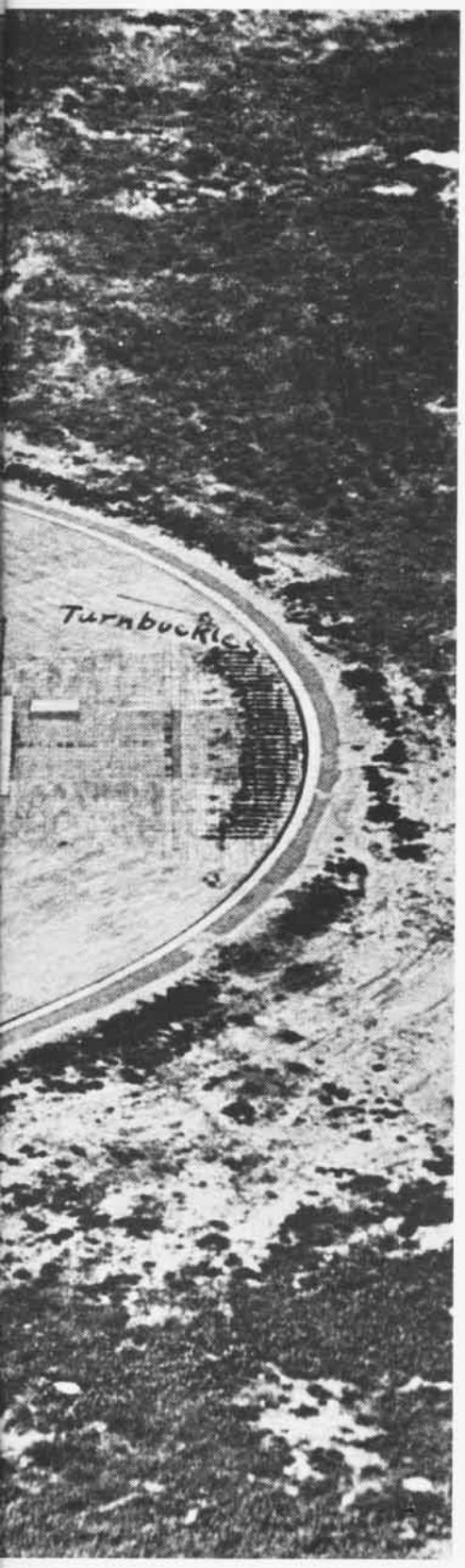
The wheels watch observed that the *Harrier's* gear was up. However, because of the aircraft's altitude over his position and the sound of power being applied, he thought the plane was waving off his approach. The aircraft landed 4,000 feet down the runway, 10 feet left of center line at 90 knots, flaps down and *gear* up. As the aircraft skidded to a stop, a small fire was observed which was quickly extinguished by the alert crash crew. The pilot was uninjured.

Grampaw Pettibone says:

Holy Hannah! Not again! I just can't believe it! And when it's all said and done, it all boils down to the same thing — distraction, preoccupation, non-use of checklist, and no help from his "friends," like the tower, wheels watch and others! This pilot was so concerned with fuel, he forgot to fly his machine.

Granted, in every wheels-up accident there are always extenuating circumstances. But the ultimate responsibility rests with one guy — the *driver*. Think about it. Is it possible that next time it might be you ?


NAVAL AVIATION
August 11, 1911
Fiddle Prigs
Pie
Pie
Tension Element
Rope Brake
Fore-and-aft wires
weights



TURNTABLE AND TRAPS

By Cdr. Rosario Rausa

From aloft it looked like the business end of an enormous banjo. One hundred feet in diameter, it was set into a deep circular pit so that it could be rotated flush with the surrounding terrain. The strings were really three-quarter-inch wires rigged in parallel full across the banjo. A series of fiddle bridges — wooden boards standing on end — held the wires above the surface. A few cross-deck lines were stretched across the long ones.

The grass turf surrounding the disc was level, interrupted by scarred patches of sand and topsoil. Breezes from the bay wafted across the expanse toward the hangars of the air station. Seaplanes swayed and dipped at anchor offshore. A few were nosed up onto the beach.

It was a sultry August day in 1921 at Naval Air Station, Hampton Roads. Attention was focused on the unusual turntable which looked like the bottom half of a musical instrument. It was the dummy deck, a specially designed platform for developing and testing an arrestment system — one which was to be installed in USS *Langley*, the American Navy's first aircraft carrier.

In one sense it was an outdoor workshop as unusual as it was vital to the future of Naval Aviation. In charge of the project was Lt. A. M. Pride. At his disposal was a staff consisting of four officers and sixty enlisted men. There was no noticeable intensity in the col-

From a report to the Bureau of Aeronautics

Test #1 Dummy Deck

3:00 P.M. 11 August 1921

Aeromarine #584
Axle Hooks — type #7a — clearance 5¼"
Tail skag hook
Wind: 15 miles from Southeast
Lieut. A. M. Pride, Pilot
Plane fitted with Vought hydrovane as preventer to protect propeller.
Taxied over ramp at 15 miles per hour.
Plane jumped 2 feet over ramp proving ramp too steep.
As dropping into wires, engaged wires in hooks.
Tail skag engaged on dropping second time.
Underside of hydrovane showed where wires scraped, showing tendency to nose over.
Axle twisted aft.

Recommendations:
Redesign ramp
Redesign tail skag hook
Prevent axle turning

lective countenance of the work force. Nor was there any apparent fear of meeting a deadline. On the other hand it seemed clear that failure was unthinkable to these Navy men.

At the Norfolk Navy Yard across the channel from Hampton Roads, the converted collier was being fitted out. Its extraordinary runway — the Navy's first carrier deck — was built on a traditional ship framework and hull. This elementary arrangement, in the vision of a comparative handful of supporters, was to become the springboard for American ocean-going air power.

The huge turntable had been hauled around into the wind by a tractor. A few yards away, Pride — only 24 years old — made final adjustments in the cockpit of his Aeromarine while warming up the 100-horsepower engine. Finally, he opened the throttle.

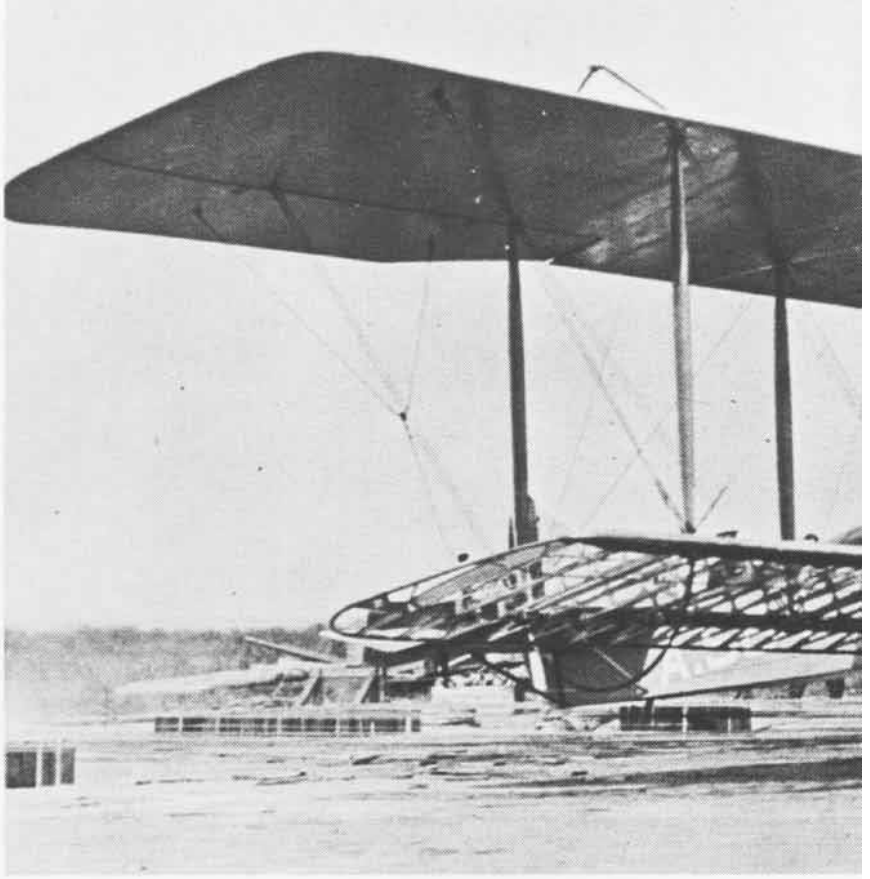
The eight cylinders rumbled loudly in the summer air. The biplane chugged across the ground toward the platform. Pride aligned the machine nicely with the fore and aft wires as speed rose to 15 miles per hour.

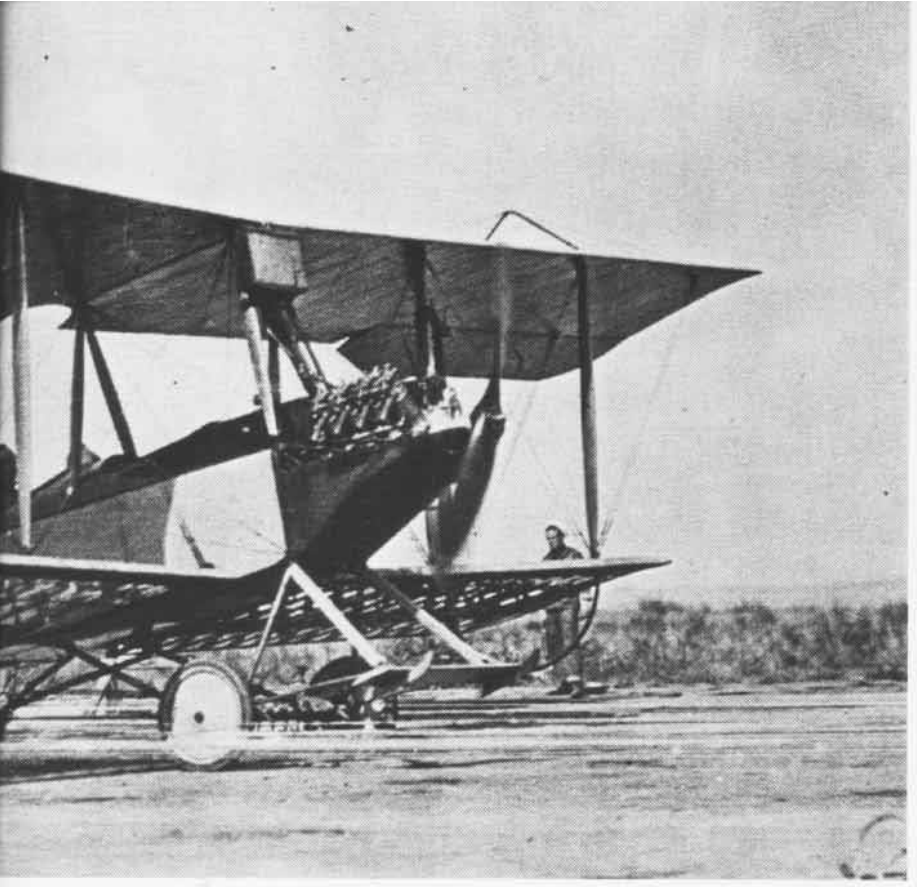
The Aeromarine churned up the ramp. It jolted precariously into the air, then settled back down. The pilot closed the throttle and held the control wheel well back in his lap. Tire rubber squealed slightly on touchdown and there was an angry rasping noise as the axle-mounted hooks rubbed against the fore and aft wires.

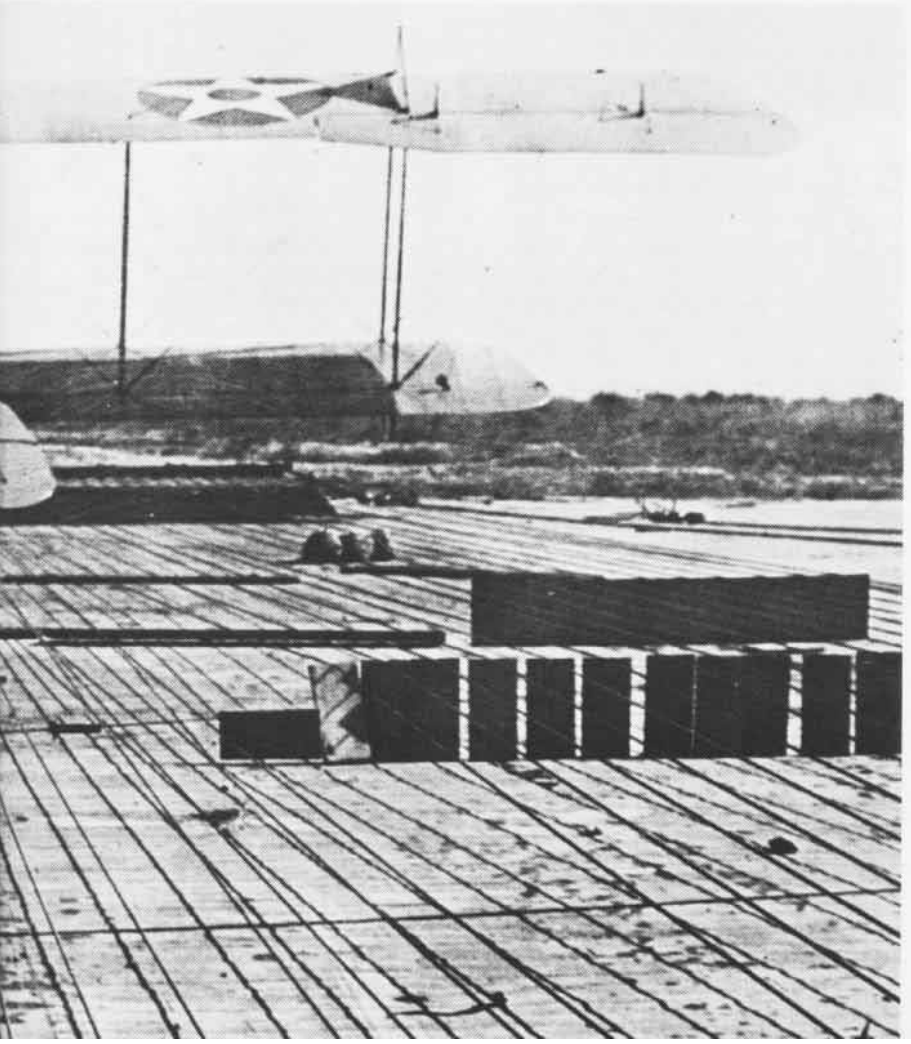
The aircraft jumped up slightly again before settling into the mesh-like complex. Some of the fiddle bridges flipped wildly away like so many tossed dominoes. A tail hook had caught cross-deck lines, also.

The Aeromarine was completely stopped. Pride secured the engine. There were no cheers. No shouting. No wild waving of arms. The onlookers knew that despite the reasonable success of this test, extensive and detailed work lay ahead. But the journey had begun and there was unspoken confidence in the young officer in charge. Each man in the unit felt that Lt. Pride could design an arresting gear system.

Test landings continued in the weeks and months that followed. In preliminary trials, sandbags at the ends of horizontal wires had been used to determine what trailing hooks should







look like and to learn something about the efficacy of axle and tail-skid hooks as well as fore and aft wires. The sandbag retarding method would not be used aboard *Langley*.

A pair of towers on either side of the turntable were eventually constructed. They rose more than 30 feet. Weights, in the form of old 11-inch ordnance shells, were suspended in the towers. They were connected to the aftermost of several horizontal cross wires through a simple network of pulleys and rope brakes.

"I felt Ely's concept was essentially sound," says Pride today. (Eugene Ely, a civilian, made the first arrested landing on a specially rigged armored cruiser in 1911. He used hooks on the plane to engage athwartship lines weighted down by sandbags on the ship. *NANews,* January 1976.)

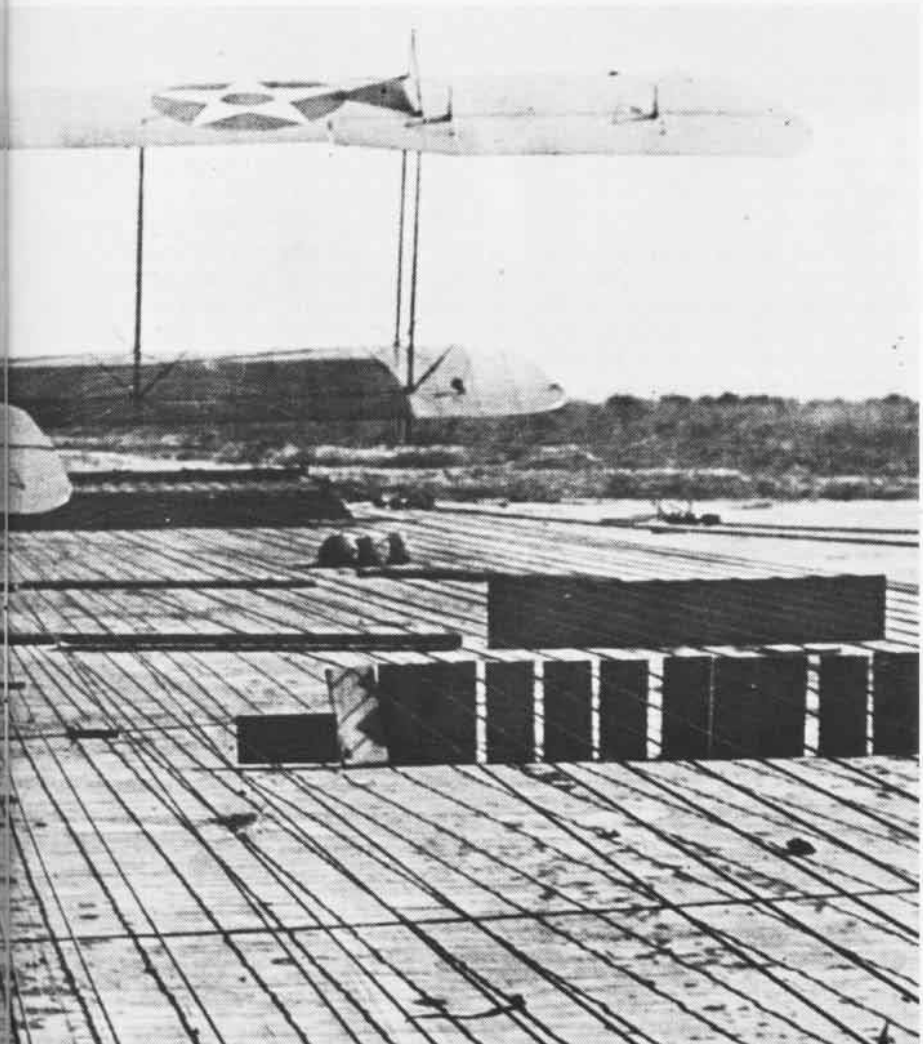
"We had to modernize the concept, of course. To me, that meant estimating the kinetic energy of a landing airplane and converting this into potential energy via a system which could be closely predicted to absorb it. This indicated the early weight system. By using appropriate weights and hoist heights, a plane could be landed, engage a cross wire, and run out properly without going too far or being halted too abruptly.

"As first installed on the ship," relates Pride, "and on the dummy deck, there were fore and aft wires nine inches apart and fifteen inches above the deck. These were supposed to prevent the plane from going overboard after an off-center landing or one in which there might be a tendency to ground loop.

"The British had employed such wires in their experiments and our authorities thought it was a good idea, also. To ensure that the plane would be restrained to the deck, axle hooks were installed.

"Unfortunately, if the plane bounced at all, it would haul one or two wires up and come down with them crossed in front of the axle hooks. This caused a heavy drag on the axle near the end of the run. It also imposed a nose-over moment which broke many a propeller.

For some tests, fabric was removed from lower wing of Aeromarine to reduce its lift. Pride recalls, "It wanted to fly, anyway," top. Fiddle bridges hold fore and aft wires above deck and toppled easily on arrestment, left.



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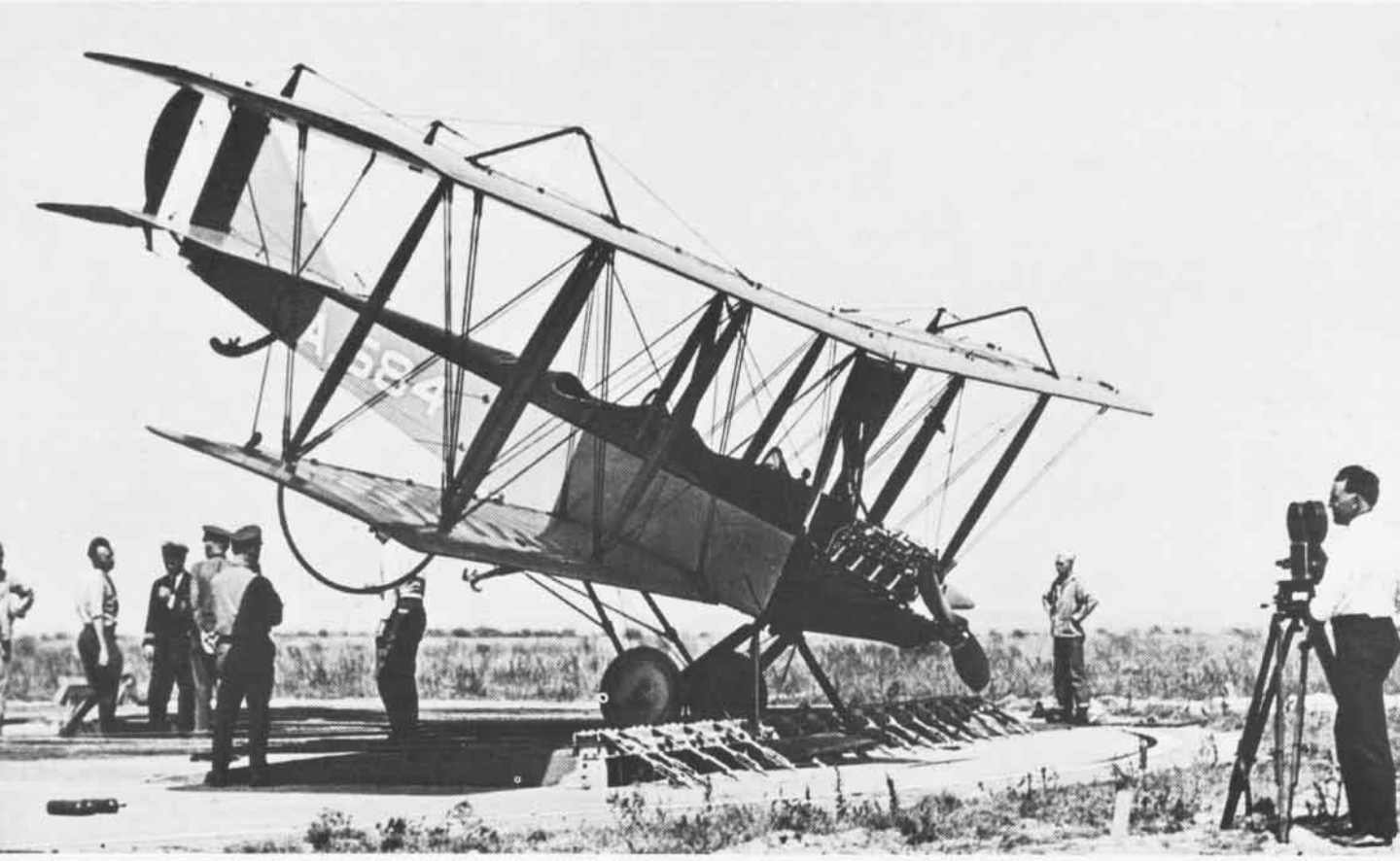
"As first installed on the ship," relates Pride, "and on the dummy deck, there were fore and aft wires nine inches apart and fifteen inches above the deck. These were supposed to prevent the plane from going overboard after an off-center landing or one in which there might be a tendency to ground loop.

"The British had employed such wires in their experiments and our authorities thought it was a good idea, also. To ensure that the plane would be restrained to the deck, axle hooks were installed.

"Unfortunately, if the plane bounced at all, it would haul one or two wires up and come down with them crossed in front of the axle hooks. This caused a heavy drag on the axle near the end of the run. It also imposed a nose-over moment which broke many a propeller.

For some tests, fabric was removed from lower wing of Aeromarine to reduce its lift. Pride recalls, "It wanted to fly, anyway," top. Fiddle bridges hold fore and aft wires above deck and toppled easily on arrestment, left.



"The trick was to land without bouncing, if possible, and to be going straight up the deck. Then you had to haul back on the flippers as soon as flying speed was lost.

"The line of effort of the hook passed above the center of gravity of the airplane thus providing a righting or nose-up moment that was sometimes insufficient to overcome the nose-over moment.

"Those in positions of authority were almost obsessed with the need for fore and aft wires. The consensus was that without them, that is, with cross-deck lines only, aircraft would surely go over the side."

Ultimately, the fore and aft lines were removed on later carriers and the comparatively basic, cross-deck wire concept prevails today.

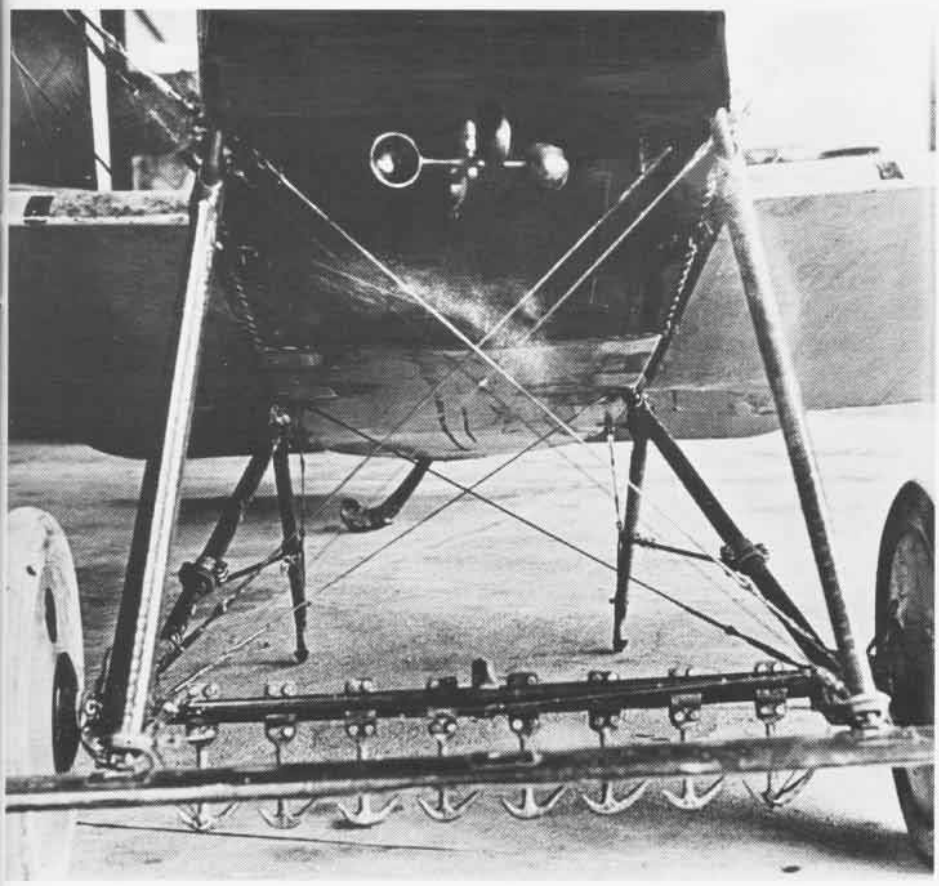
In the weeks that followed, modifications were made on an almost daily basis. Pride traveled back and forth to *Langley* and the Norfolk shipyard, consulting with others. "We even tried snow skis," he recalls, "not to mention a few exotic ideas sent down from the Bureau of Aeronautics."

Essentially, though, the lieutenant and his men did their work on the premises, including machining parts and drawing up plans. They had their own blacksmith, for example, who was kept busy working on the engaging hooks. A variety of hook designs were tried, lines were strengthened and countless other alterations made in the quest for a suitable system.

Culmination of their labors was realized on October 26, 1922. *Langley* was off Virginia's Cape Henry. LCdr. G. deC. Chevalier, a Naval Aviation pioneer, rolled into the groove in an Aeromarine and made the first arrested landing on the American carrier. Fittingly, Lt. Pride was flying overhead to observe the event.

To this day, Pride downplays the significance of his contribution to the arresting gear achievement. "All the ideas we incorporated had been tried in one form or another by others," he says. "Take landing a plane on the flight deck. Basically, you want to stop a moving object. It makes sense that a hook suspended from the moving object, grasping a line held taut, should do the job. I have a feeling this method was explored for some purpose or other in prehistoric times."

Lt. Pride went on to a distinguished naval career. He was retired in 1959 as a four star admiral, one of those rare individuals who rose from enlisted man to full admiral without attending



Pride, as a lieutenant, above, found plane's tendency to nose over after arrestment one of the problems his unit had to solve. Aeromarine was configured in various ways. One arrangement, left, included crossbar to help preclude prop from striking deck when nosing over, axle hooks for engaging longitudinal wires, and hooks, including tail skag type, for catching the cross-deck lines.

the Naval Academy.

Admiral Pride is now approaching his 80th year with vigor, uncommon energy and a quick smile. There is a youthful sparkle in his eyes — eyes which have witnessed virtually every major technical advance in carrier aviation.

It all began in 1917. He left Tufts University in Massachusetts before completing his freshman year. Lured by the recruiting pitch of a Navy lieutenant, he opted for the sea service. He recalls, "I also pondered my progress in a certain chemistry class, concluded I wouldn't pass the course, and shortly thereafter boarded a trolley from Medford to Charlestown to join up."

Assigned as an engineer of a surface patrol boat based in Boston Harbor, he soon wanted to be an aviator. His request to CNO was approved and, as a chief quartermaster, he trained at flying stations in Miami and Pensacola. After 48 flight hours, he was designated a patrol pilot and sent to the war in Europe to search for submarines.

After the Armistice, Pride continued in patrol boats operating out of NAS Chatham. "We wore leathertex suits in those open air cockpits," he remembers. "They let the heat out, the cold in. And the noise level of the engines was horrible. If we flew a four-hour hop, we'd be deaf for two hours after shutdown."

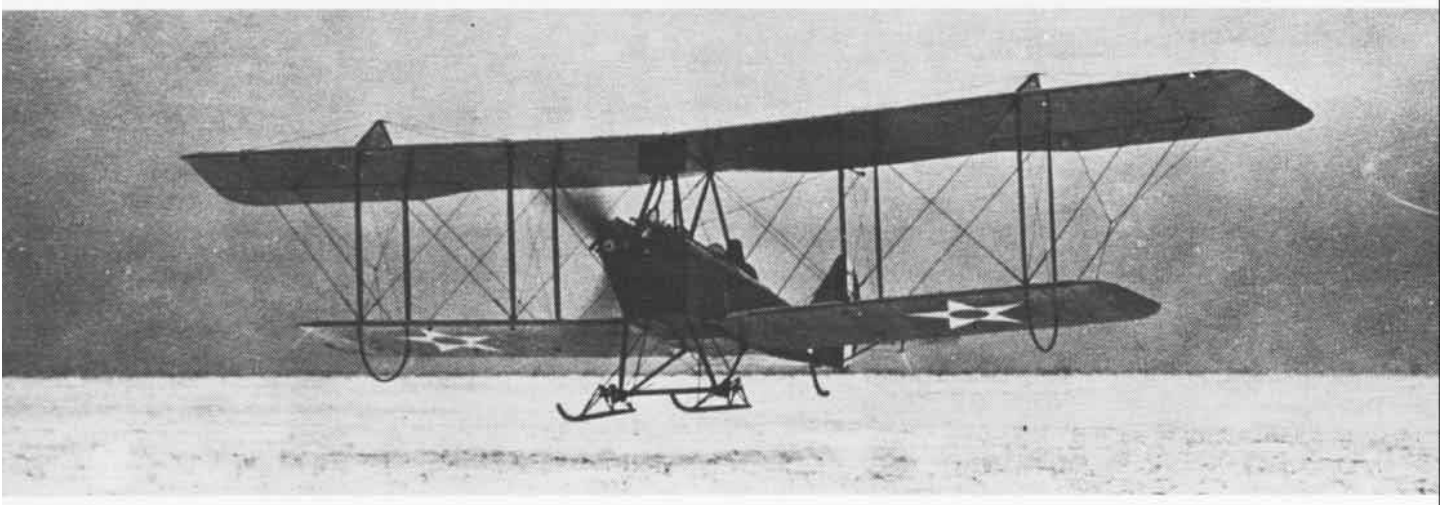
Testing and development duty followed but through the years Pride had his full share of staff duty. He also held numerous commands. He was skipper of a fighter squadron on *Langley*. He was executive officer aboard USS *Saratoga* on December 7, 1941, and commanded USS *Belleau Wood* through various combat operations in the Pacific after Pearl Harbor.

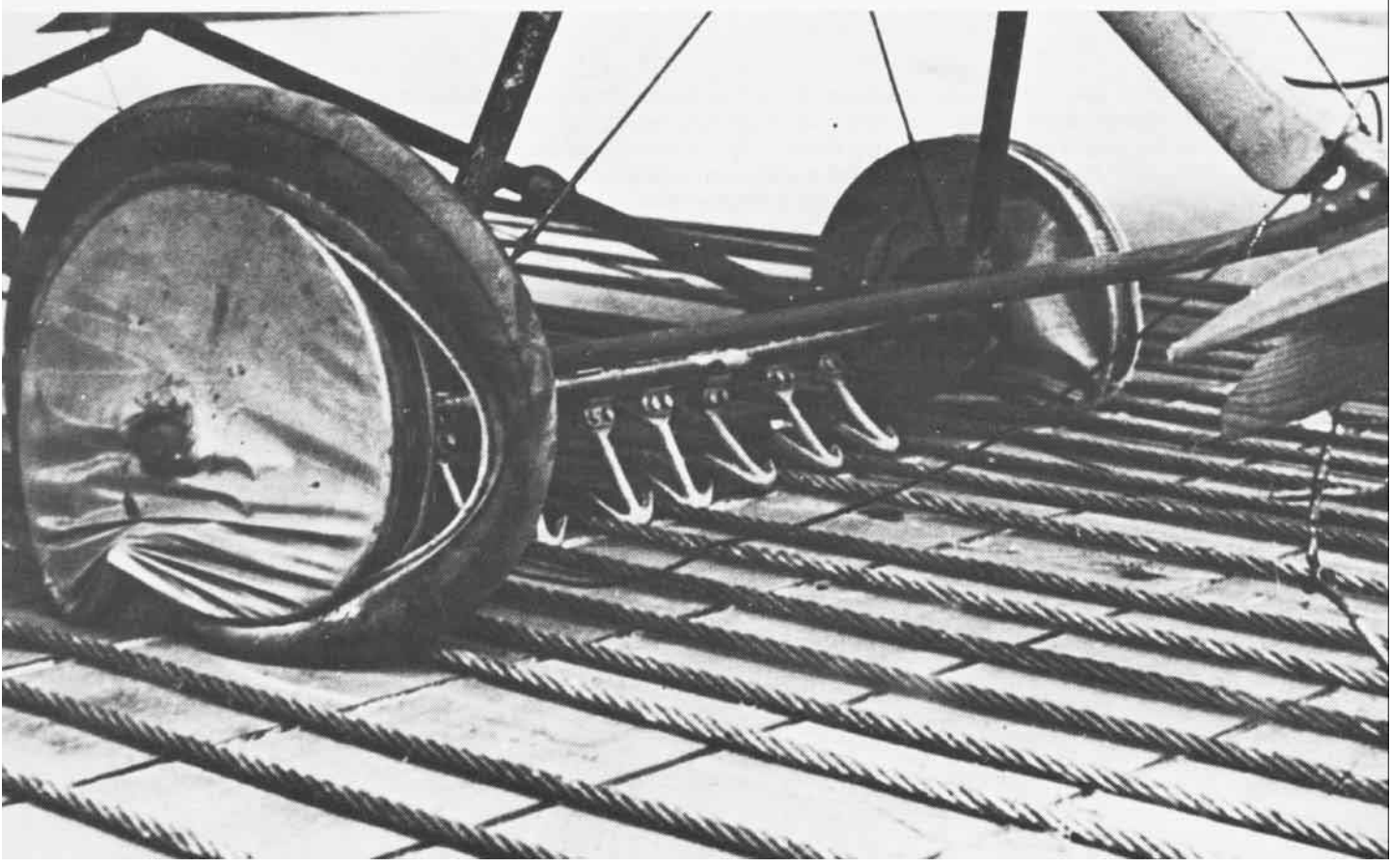
He headed the Naval Air Centers, 14th Naval District and commanded Air Support in amphibious operations until the end of the war.

He commanded Carrier Divisions Six, Four and Two. He was Chief of the Bureau of Aeronautics. He headed the Naval Air Test Center at Patuxent River. He was Commander of the Seventh Fleet in 1955. In February of that year, he personally supervised the evacuation of 27,000 people from the Tachen Islands — all in a three-and-a-half-day period. In his final post he was Commander Air Force, Pacific Fleet.

He flew virtually every naval aircraft of his time — and crashed in a few of them during harrowing flight tests. In


A-584





a UO-1, he made the first takeoff and landing on CV-2, USS *Lexington*. He piloted the Navy's first rotary wing aircraft, an XOP-1 autogiro, in landings and takeoffs aboard *Langley*. He doesn't know how many carrier landings he's made — around two to three hundred, he thinks — or his total flight hours, for that matter. A contemporary, who noted that Pride developed the dragging, nose-high, carrier approach with power — eventually a standard procedure, described the flying skill of Pride as "precision plus."

Although he continued book learning at the Naval Academy and MIT, it is apparent that Pride possessed extraordinary mechanical expertise. For example, on some of the earlier carriers the cable retracting system had units on either side of the ship. Off-center engagements usually resulted in aircraft running out perilously to one or the other side of the ship. Pride theorized that a single retracting unit would allow equal run-out of the cable.

Sandbags on cross-deck wires were used in early tests to evaluate hooks, top left. Snow skis were also tested, left. Aircraft damage sustained during a platform arrestment was not uncommon, bottom left. Below, DT appears to be making a ramp strike, but, in fact, is effecting a normal arrested landing aboard USS Langley in the Twenties.

He was right and designed the gear, refinements of which are still in use.

He redesigned flight deck lighting. His system consisted of lights rigged in a box-like arrangement set flush to the level of the flight deck. The lights reflected through slits in the box. This provided approaching pilots with a more subtle glow rather than a glaring effect. There were less problems with depth perception.

Unhappy with arresting systems which relied on ship's power alone, as on *Saratoga* and *Lexington*, he devised self-generated units. "I was concerned that if the carrier suffered a casualty to its power plant we wouldn't be able to retract the wires after the first aircraft landed."

Memories of those pioneering days are vivid, days that sparkled with names like Whiting, Chevalier, Reeves and so many others. Adm. Pride is often asked if the flyers of that era were "a special breed." Not one to summon dramatic verbiage or to embellish sea stories with unnecessary flair, he answers, "I suppose we were called mavericks. But, really, we were just people interested in aviation.

"Our surface Navy counterparts," he goes on, "resisted us somewhat. They felt that the battleship would go on forever as a principal bastion of naval strength. The big guns of those ships would ward off any foe, they thought.

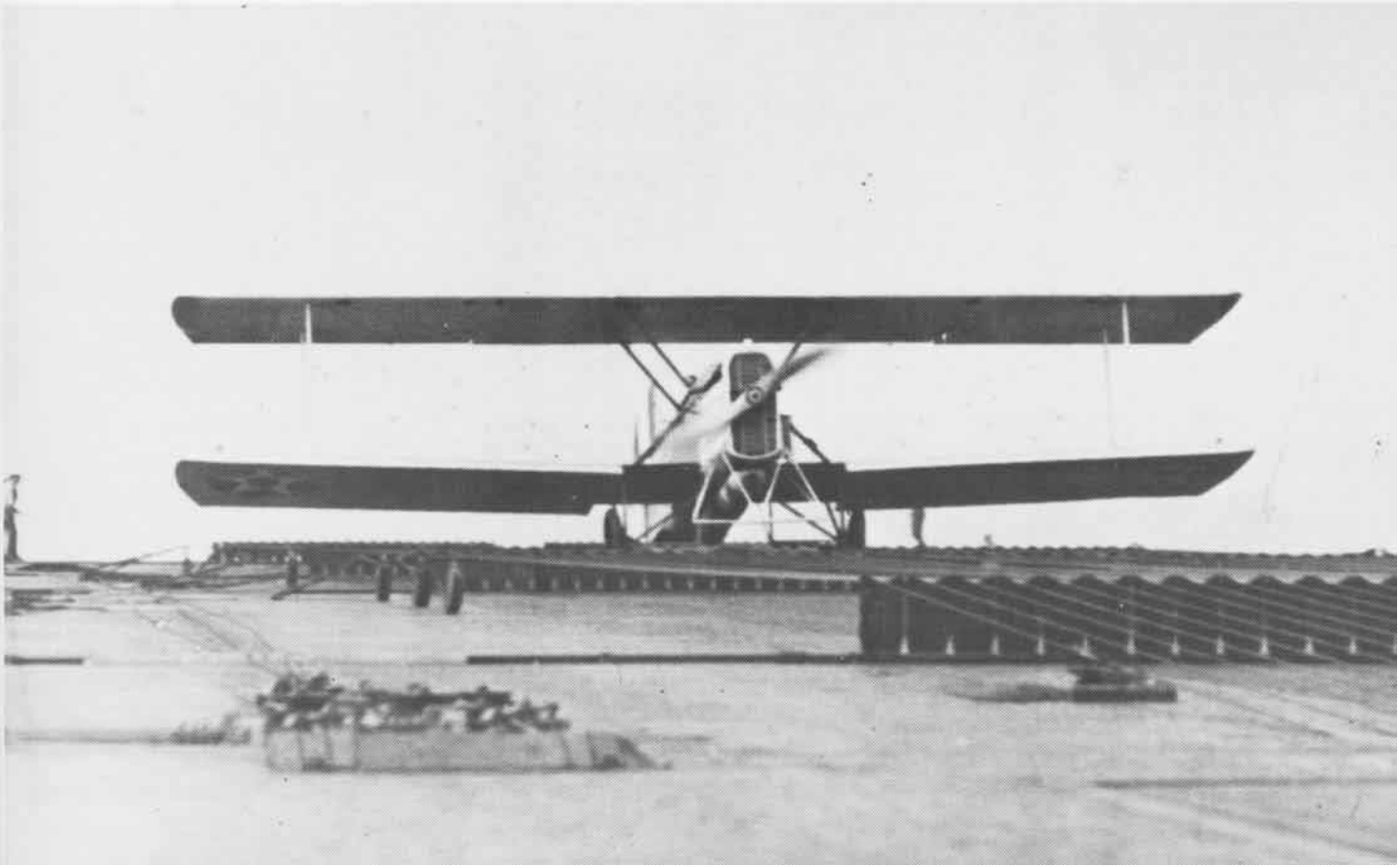
"Still, there were times when they had reason to be annoyed. As the engine of my Nieuport 28 on the turret of *Arizona* turned up, it would spew castor oil onto the beautiful teak decks which seemed to irritate the first lieutenant."

Pride remembers naval air's employment of carrier pigeons. "We carried them in a box — one pigeon in each of four compartments in the box. One afternoon we had to land our patrol plane in the water due to engine failure. I scribbled a message to home base requesting assistance. I slipped the message into a capsule on the pigeon's leg and flung him into the sky.

"The bird headed toward the beach for a few seconds, did a one eighty and alighted on the wing. I tossed him up again. And again he returned. At which point I climbed out and fixed the engine myself."

And there was the case of the *Langley* pigeons. Says the Admiral, "CV-1 had a loft on the fantail. A rather handsome structure, it was home for about 100 birds. The pigeon quartermaster — an official title by the way — was in charge of the loft.

"One day we were operating near Tangier Island in Chesapeake Bay. The



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An Admiral Pride scrapbook could include these highlights of his career.

(1) In 1931 he piloted Navy's first rotary wing aircraft, XOP-1, in landing and takeoffs aboard USS Langley.

(2) This bear became Lexington's mascot and lived with the crew. Pride recalls, "He grew big and ornery. One night a sailor fell out of his hammock onto the bear. All hell broke loose. The bear was shortly transferred to a zoo."

(3) Pride flew some rough water tests in Pan American transport.

(4) Before Chevalier's first trap on CV-1, smoke pots were used to determine wind flow and possible turbulence along the approach path.

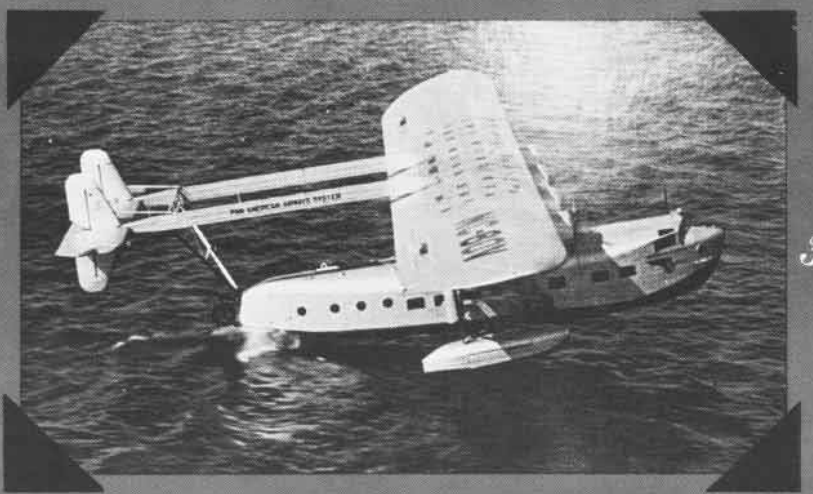
(5) Cottage-like pigeon loft on Langley later became the executive officer's cabin.

(6) Pride stands in cockpit of experimental F9C after mishap during test flight at Hampton Roads.

(7) Pride landed in Cuba once, following gunfire spotting exercise for the fleet, and needed authentic horsepower to get his Camel positioned for takeoff.

(8) Aeromarine is hoisted aboard Langley at Norfolk in the fall of 1922.

(9) Wearing what looks like an all-weather coat, Pride seems comfortable awaiting assistance for his XFH-1.



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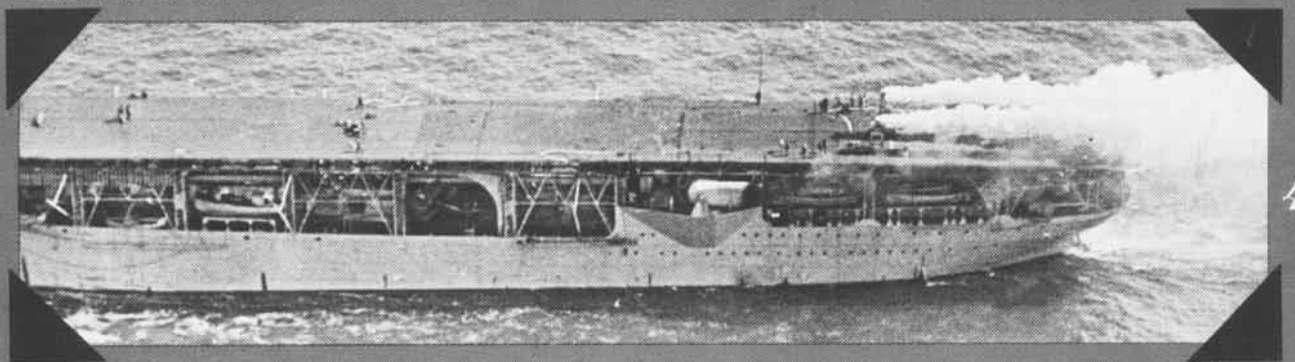

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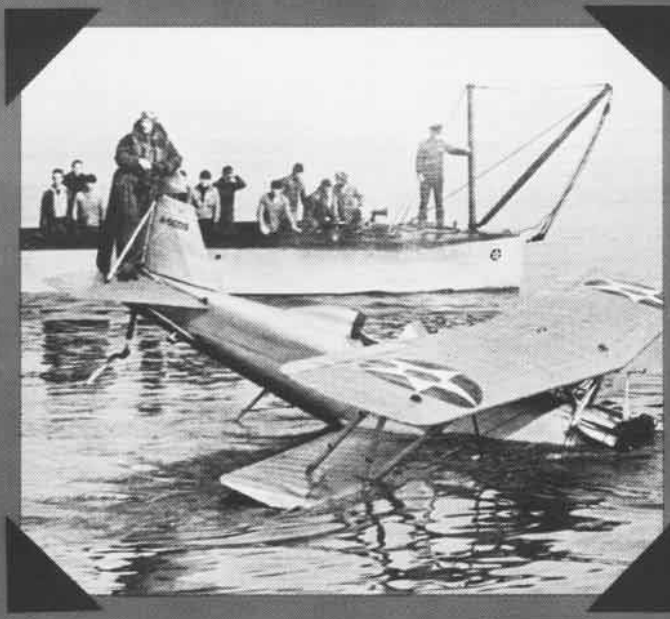

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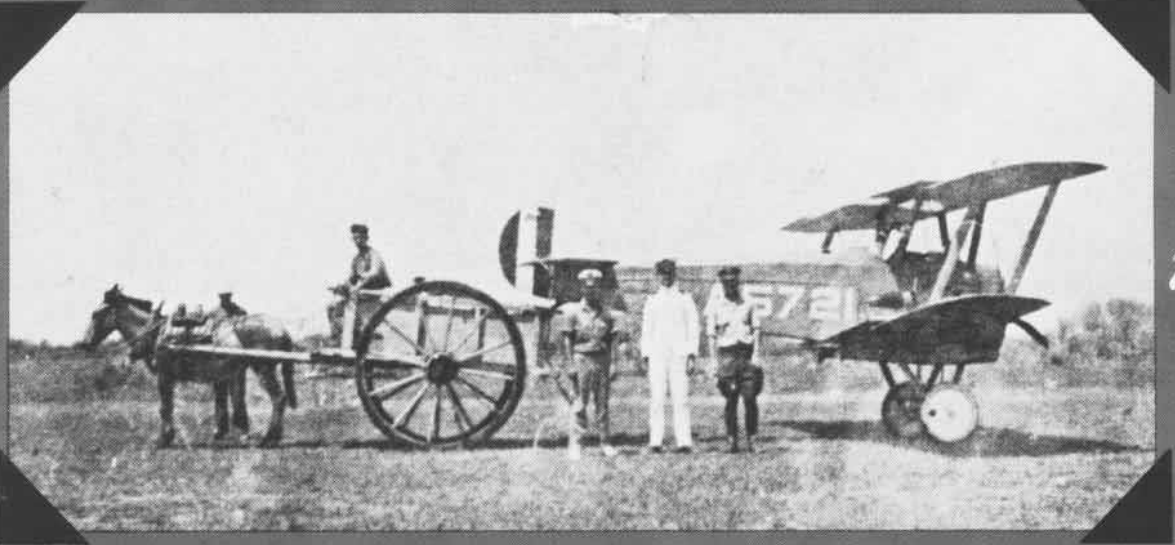

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PQM was exercising the birds. He would let one or two out at a time. They would flap away for a few minutes, then return, making their approach to a platform which extended from the loft. As a pigeon landed, a bell would ring. The PQM would then let the bird back in.

"The air officer had observed this operation. In the interest of efficiency, he directed the quartermaster to let all the pigeons out at one time so that they could exercise en masse.

" 'But sir,' pleaded the PQM, 'we can't do that. They might all fly away and not come back!'

" 'Let them out all at once,' directed the air officer.

"The PQM obeyed. The birds whirled away in a furious flutter. On they went toward the western horizon. They disappeared from view. The PQM and the air officer waited. The pigeons failed to return. The PQM hung his head in dismay. By nightfall hope for their return was abandoned.

"A dispatch arrived from the Norfolk Navy Yard.

'Langley pigeons perched on yard crane. Base has no appropriations for bird feed. Please rectify situation.'

"I flew the PQM to Norfolk that night. He had to climb the crane and coax the pigeons down. Somehow he got them together. But it was decided not to return them to the ship. The pigeon loft became the executive officer's cabin — excellent quarters, I might add. Ken Whiting was the X.O."

Adm. Pride was particularly impressed with Whiting and speaks highly of him. He also believes that Whiting was the first landing signal officer in Naval Aviation.

"Whiting," recalls the Admiral, "enjoyed watching recoveries from a platform rigged with netting near the fantail. One particular pilot had a tendency to come in high. After he made several approaches, Whiting grabbed the white hats of two nearby sailors and climbed up onto the deck. He held the hats high above his head, a gesture that somehow got through to the errant flyer. To my mind, Whiting was our first LSO."

Aide to DCNO(Air Warfare), Captain Tom Watson, was a lieutenant in the 1950s when Adm. Pride was Commander Air Force, Pacific Fleet (now ComNavAirPac). "The Admiral was on leave," recalls Watson. "But I had to take some messages to his quarters. I went to the front door and Mrs. Pride told me her husband was out back in the garage. I went around the corner. A pair of feet stuck out from beneath this very old car. 'Admiral Pride,' I called. 'Right here!' came a voice from below the auto. A man on a dolly rolled out and stood up. He was in coveralls and smudged with grease from head to toe. He looked every bit the mechanic. Surely this couldn't be the top officer in AirPac!

" 'I'm Admiral Pride,' he said. 'What do you need, young fellow?'

"I gave him the messages which he carefully reviewed while I waited. 'Thank you,' he said. Then he got on the dolly, slid under and went back to work on the car."

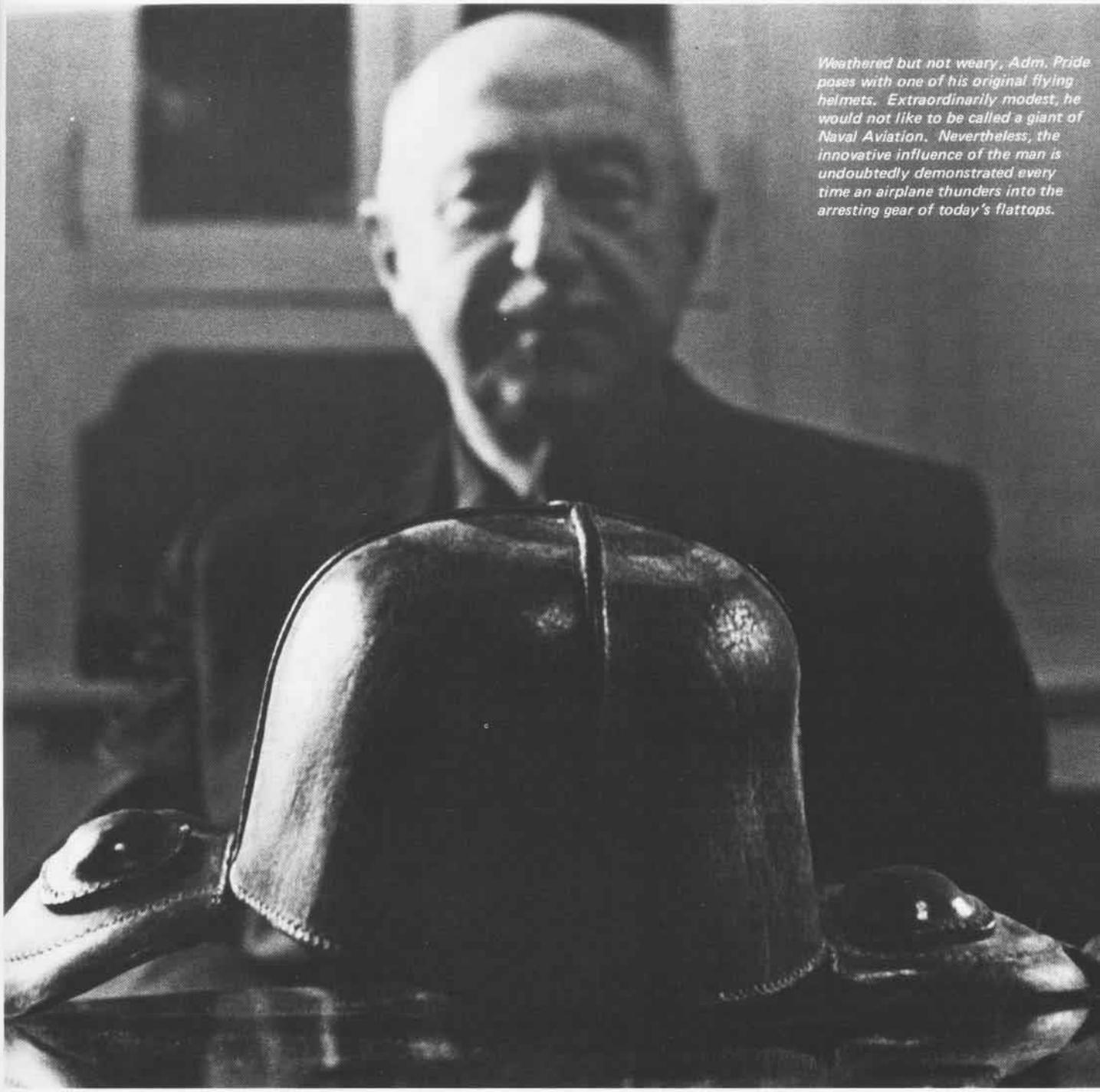
Capt. Watson recalls another side of Pride. "There was a change of command under way at one of the tenant units. I was running all over the place tending to certain details. I had recently gotten married and my young bride arrived for the ceremony alone. There was no one to meet her and she couldn't find me. She was a little distressed. Out of the crowd this gentleman in uniform appeared. He saw my wife's look of concern and went to assist. He found her a seat and escorted her to it. The man was Admiral Pride. We were very impressed."

So, too, have been many others in the world of Naval Aviation.

24 November 1975

I hope your interview with Admiral Mel Pride results in an article in *Naval Aviation News*. For my money he is one of the smartest men the Navy has ever had and deserves credit along with Whiting, Chevalier, and Reeves for development of the carrier. On the old *Langley* he was by far the best pilot and did most of the important flying. He was a lieutenant then and, as an ensign, I looked up to him in awe of his knowledge and ability. I still do. He also probably knows more about carriers than any man alive.

Jack Tate, RAdm., USN (Ret.)



Weathered but not weary, Adm. Pride poses with one of his original flying helmets. Extraordinarily modest, he would not like to be called a giant of Naval Aviation. Nevertheless, the innovative influence of the man is undoubtedly demonstrated every time an airplane thunders into the arresting gear of today's flattops.

BREWSTE

Ordered as a prototype in 1936, Brewster's first fighter was expected to be a major advancement in Navy fighters. Its potential was sufficient to persuade Grumman and the Navy to convert Grumman's competing XF4F-1 biplane design to the XF4F-2 monoplane. The XF2A-1 prototype measured up well enough in 1938 competitive flight trials for 54 F2A-1s to be ordered — the Navy's first production monoplane fighters. As this was Brewster's first production airplane, initial deliveries were slow. The first F2A-1 flew in June 1939, with the first squadron delivery to VF-3 in December. By this time the Navy had released 43 of its 54 on order, for export to Finland as land-based fighters. They were to be replaced on the Navy order by improved F2A-2s, based on the XF2A-2 conversion of the original prototype, using a higher powered Cyclone engine.

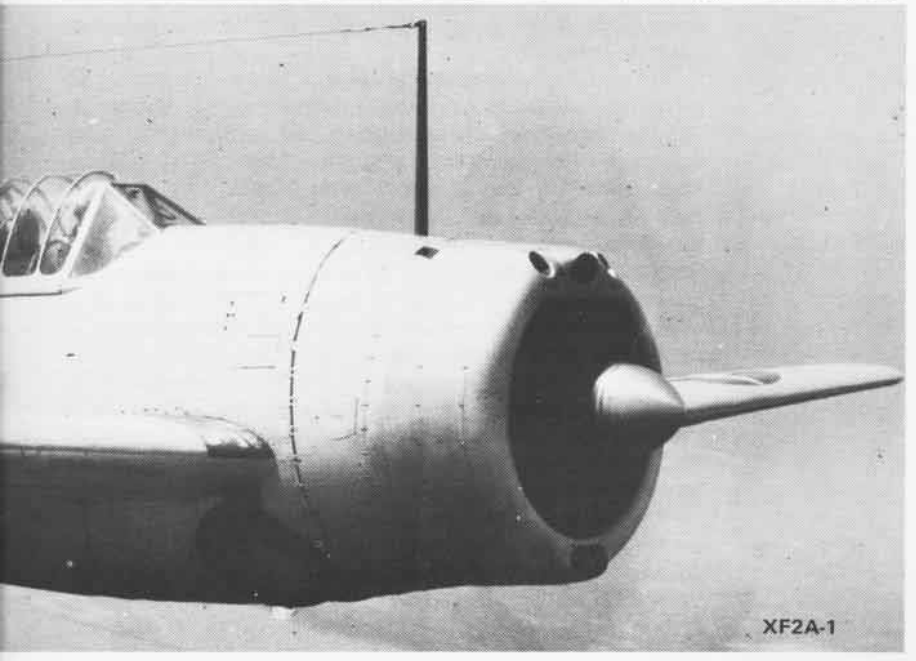
By June of 1940, VF-3 had ten F2A-1s. F2A-2s followed to fill out the squadron, and in October VF-2 became the second squadron to be equipped with the new monoplane fighters.

The need for increased armor and fuel-tank protection, shown by actual combat experience in Europe, led to a "combat modification" of the F2A-2, tested in 1941, and conversion of the remaining -1s to this configuration. While many export *Buffalos* were built by Brewster, the Navy switched its interest to the revamped F4F, by then in production as the F4F-3. To meet the need for numbers of fighters in the expanding fleet and maintain Brewster's production capability while the SB2A-1 went into production, 108 F2A-3s were ordered in January 1941. These had increased internal fuel and other improvements. They were all delivered during the fall of 1941, at which time the Navy adopted the British name, *Buffalo*, for its F2As.

Combat F2A-2s were assigned to VS-201, operating from the escort carrier *Long Island*. As the F2A-3s were delivered, however, all of the -2s were assigned to advanced training duty. VF-2 and VS-201 both received -3s, along with VMF-221. These were the squadrons flying the *Buffalo* at the time of Pearl Harbor.

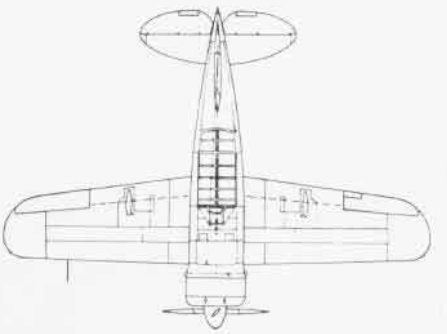
VF-2 traded its *Buffalos* for *Wildcats* late in January 1942 leaving the Marines to fly the F2A-3s in the Pacific. When VMF-221 finally entered combat with the -3s, flying from Midway in the Battle of Midway, their brief combat record was far from the expectations of earlier years. Eventually the -3s joined the -2s in the advanced training role. Only with the Finnish Air Force did Brewster's fighter see successful WW II combat service.

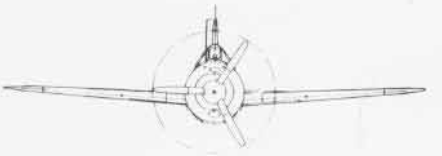
R BUFFALO

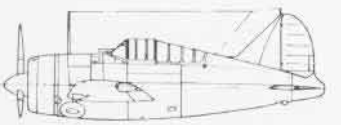


F2A

Span		35'
Length	-1	26'
	-2	25' 7"
	-3	26' 4"
Height	-1	11' 8"
	-2, -3	12'
Power plant	-1	Wright R-1820-34, 950 hp
	-2, -3	Wright R-1820-40, 1,200 hp
Max speed	-1	301 mph
	-2	324 mph
	-3	321 mph
Service ceiling	-1	32,500'
	-2	34,000'
	-3	33,200'
Range	-1	1,545 miles
	-2	1,405 miles
	-3	1,530 miles
Armament	-1	three .50 machine guns + one .30 machine gun
	-2, -3	four .50 machine guns
	All models:	two 116-lb. bombs







Have Hawk

By LCdr. John Allman

The proud motto of the *Royal Blues* at NAS Lemoore-based Attack Squadron 127 is "A-4s Forever." Versatile and multi-missioned, the squadron conducts readiness, instrument, ACM adversary, basic jet, refresher and transition training.

The squadron's primary mission is to provide basic and refresher instrument training for aviators of the light attack community. Prior to commencing A-7 replacement training, each fleet replacement pilot completes VA-127's nine-flight, 18-hour instrument syllabus. Once a year, each light attack pilot is eligible to fly the squadron's four-flight instrument refresher syllabus. Upon completion of these, the replacement and fleet pilots are current in their annual instrument card requirements.

The *Royal Blues*' secondary mission was acquired in November 1975 when it became the Navy's first light attack air combat maneuvering adversary squadron. The adversary program provides ground and flight instruction in dissimilar air combat maneuvering for light attack units of the Pacific Fleet. The courses are taught by a team of seven specially trained, designated adversary pilots. Four of the seven are graduates of the Fighter Weapons School course. The team has accumulated over 1,200 hours of ACM experience in the past year.

Ground training includes energy maneuverability theory, fighter/attack aircraft comparisons, basic and multi-plane combat tactics and enemy aircraft and systems capabilities.

Will Hassle

Photos by Harry Gann, Douglas Aircraft

Royal Blues' camouflaged TA-4 goes straight up over California's Owens Valley, opposite. Trio of squadron Skyhawks with regular markings head for home, left. A-7 wings by adversary A-4, above. Below, VA-147 X.O., Cdr. Paul Austin; author and VA-127 adversary training officer Allman; and Royal Blues C.O., Cdr. A. R. Chauncey, listen to VA-147's Lt. Carl Torgeson talk tactics.

Flight training consists of five sorties with the squadron's TA-4s providing dissimilar ACM in one-versus-one and two-versus-one environments. The final flight is a full-scale section attack mission, planned and flown under simulated combat conditions.

Since the inception of the ACM adversary mission, VA-127 has deployed eight detachments to provide various air wings and fighter squadrons with dissimilar air combat maneuvering training and aggressor opposition for strike operations.

Objectives of the instruction are: to furnish each squadron with a formal defensive tactics syllabus against a dissimilar, highly maneuverable adversary, to assist the light attack pilot in determining the optimum maneuvers and tactics for his type aircraft in a high air threat environment, and to instill the necessary expertise and confidence to operate successfully in such an environment.

Over 40 pilots from six A-7 squadrons have completed the adversary syllabus.

Attack Squadron 127 also trains pilots of the Republic of Singapore Air Force. Quarterly, four to six of these complete advanced TA-4 training and are ordered to VA-127 for transition to the A-4. They also receive radar navigation, ordnance delivery, and air combat maneuvering instruction.

The *Royal Blues* believe that "Variety is the spice of a Naval Aviator's life."

Great Balls of Fire !

By Ltjg. Theodore Bybel

What do you have if you take an old geezer with a flowing white beard, dress him in a WW I leather helmet and flight jacket, and turn him loose in the Naval Aviation community to fight a never-ending battle for safety and the preservation of human life?

Grampaw Pettibone! Yep, but you are only partly correct. Because at NAS Brunswick, Maine, it is VP-26's assistant safety officer, Lt. Jerry Giordano.

Lt. Giordano came up with the idea of playing Gramps as an attention-getter for a VP-26 *Trident* AOM meeting. At that meeting, the safety department was going to commend the squadron. The unit's favorable attitude toward safety is largely responsible for over 12 years of accident-free air operations. Lt. Giordano rummaged around, found a white beard and other gear. When he finished, he looked amazingly like the notorious Robert Osborn character from the pages of *Naval Aviation News*.

On a cold December morning last year, Gramps became a real part of the *Trident's* safety program when he showed up at Brunswick to get a look at "one of those new-fangled contraptions (a P-3B) which looks like four aeroplanes bolted together with a pipe in between." He liked what he saw and has since become a member of the safety team of VP-26 and ComPatWing-5.

In January, Gramps made a guest appearance at a PatWing-5 safety stand down. This time he kicked off a cold-weather ops seminar for the pilots and NFOs of the wing.

Gramps reminisced about being one of the original instrument pilots. "We'd fly along at the base of the clouds until the clouds got so low the wheels would touch the bumps in the road. Then the basic technique was to climb a few feet and keep the aeroplane between the wing-tip lights."

Later in January, after freezing rains fell on top of packed snow and two inches of ice covered the ramp areas of Brunswick, Gramps appeared again. This time he was looking for flight-crew members whom he suspected might be trying to "skate" through preflights in the cold Maine climate. He quickly spotted LCdr. Bruce Dettman, VP-26, conducting a pilot's exterior preflight on a pair of ice skates. That was bad enough, but when he saw, out of the corner of his eye, an electronics technician walk through a prop arc, his white beard turned whiter and his rosy complexion became a fiery red.

Gramps immediately became Grumps and stormed over to give the technician a piece of his mind as well as a lecture on the dangers of developing an instant split personality.

Gol'darned young whippersnappers," he was heard to mumble, "don't they know that if that big fan accidentally turned it would give 'em a headache that even chicken soup wouldn't fix."

Gramps has also been moonlighting as a magazine distributor, delivering copies of *Mech* to the various departments around VP-26. He was also heard telling the *Trident* administrative officer, LCdr. Sam Wyvill, "Don't poke yourself in the eye, sonny."

On April 1, Gramps was wandering

around PatWing-5 spaces when he happened upon Captain O. A. Kidd and the various squadron commanders in conference. As he looked around the room he was surprised to see a familiar face from the past—Ltjg. Skippy Berg whom he had taught to fly in the *Yellow Peril*. Back in those days "We could get by on a few hours a month, but not today," he said.

About a week later, Gramps was on hand to greet Berg after Berg completed his 7,000th pilot hour (and VP-26's 112,088th accident-free flight hour). "It's amazin' how such a young feller can get so much flight time," Gramps said.

"I remember how difficult it was to scan all those instruments in my day, and all we had was a clock and a thermometer. Things get tougher as the aircraft get complicated."

As Gramps, Lt. Giordano has enhanced an already aggressive VP-26 safety program. With emphasis on the basics of safety, he has stressed the idea of doing things the safe way—on the ground and in the air. He may be amusing, but his message is serious.

An inspection of the flowing white beard and the custom name tag on his knee-length flight jacket confirmed the identity of Grampaw Pettibone, far left. Gramps caught LCdr. Dettman conducting an exterior preflight on ice skates, center. At right, Gramps espouses the virtues of aviation safety at a squadron AOM. Below, cane in hand, to help his rickety bones, Gramps goes on an FOD walkdown.

1909 Acting Secretary of the Navy denied the Bureau of Equipment authority to advertise for construction of "two heavier-than-air flying machines." The reason was "The department does not consider that the development of an aeroplane has progressed sufficiently at this time for use in the Navy."

1911 Officers on flight duty at Hammondsport, N.Y., and Dayton, Ohio, were ordered to report to Engineering Experiment Station, Naval Academy, "in connection with the test of gasoline motors and other experimental work in the development of aviation."

1913 A Sperry gyroscopic stabilizer (automatic pilot) was flight-tested in a C-2 Curtiss flying boat by Ltjg. P. N. L. Bellinger at Hammondsport, N.Y.

1914 LCdr. H. C. Mustin, Lt. Bellinger and 1st Lt. B. L. Smith, USMC, toured aircraft factories and aerodromes in the Paris area. This first use of Naval Aviators as observers in foreign countries was a precedent for assigning aviation assistants to naval attaches. (Lt. J. H. Towers was assigned to the London naval attache the same month.)

1915 Naval Observatory requested Eastman Kodak Company to develop an aerial camera with a high-speed lens suitable for photography at 1,000 to 2,000 yards altitude.

Lt. Bellinger in an AH-10 provided first air spotting for shore batteries at Fortress Monroe, Va., signaling with Very pistol flares.

1916 Naval Appropriation Act FY 1917 provided for establishment of a Naval Flying Corps of 150 officers and 350 enlisted men, in addition to those in other branches of Navy.

1917 SecNav approved plans to establish one training and three coastal patrol stations in France, the first in an overseas base construction program.

The beginning of serious Navy interest in launching torpedoes from aircraft was marked at Huntington Bay, Long Island, when a dummy torpedo was launched from a seaplane. It struck the water at an unfavorable angle and ricocheted, nearly striking the plane.

Development of NC flying boats began with a memo by Chief Constructor D. W. Taylor outlining general requirements of airplanes in war and directing his staff to investigate the subject. He stated that the ideal solution would be big flying boats.

1918 First American night combat patrol out of Killingholme, England, on a course intercepting reported Zeppelin raid, may have been first of the war by U.S. Naval Aviator.

NAS Halifax, Nova Scotia, first of two air stations in Canada, was commissioned to conduct patrols over northern approaches to the Atlantic Coast, Lt. R. E. Byrd commanding.

A flight of bombers and fighters from NAS Porto Corsini, Italy, was intercepted by superior force of Austrian planes. For his heroism in rescuing a downed pilot in this engagement, Ens. C. H. Hammann was later awarded the Medal of Honor, first Naval Aviator to receive that honor.

1919 SecNav authorized construction of Navy's first rigid airship, ZR-1, later designated USS *Shenandoah*.

A General Order directed that parachutes be carried for each person on board dirigible flights.

1921 A WW I high-altitude bombsight on a gyroscopically stabilized base was tested by Torpedo Squadron, Atlantic Fleet at Yorktown, Va., completing first phase of Carl L. Norden's development of high-altitude bombsight for Bureau of Ordnance.

Bureau of Aeronautics established.

Practical development of carrier arresting gear started at Hampton Roads when Lt. A. M. Pride taxied an Aeromarine onto dummy deck and engaged arresting wires (page 8).

1924 In first use of rigid airships with the fleet, *Shenandoah* departed Lakehurst to take part in a Scouting Fleet problem 300 miles at sea.

1933 The use of variable-pitch propellers during exercises involving six F4B-4s from *Langley* and one F4B-4 from *Saratoga* marked the initial service acceptance of the variable-pitch propeller.

1936 Change in flight syllabus placed more emphasis on instrument flying. The course was to be given by new instrument flying unit at Pensacola.

1938 *Ranger* fired on a radio-controlled JH-1 which was making a simulated horizontal bombing attack on the fleet. This was first American use of drone target aircraft in antiaircraft exercises and indicated that a radio-controlled aircraft could be used as training device in fleet.

1939 *Yorktown* and *Enterprise* successfully launched SBC-3 and O3U-3 aircraft from flight and hangar deck catapults, first practical demonstration of launching from carriers using hydraulic flush-deck catapult and first catapulting of aircraft from hangar deck.

1941 BuAer issued preliminary plan for installing radar in naval aircraft. Plan also provided for radio altimeters in patrol and torpedo planes, and recognition equipment in all service planes.

Microwave radar, featuring a plan position indicator, had first airborne testing in XJO-3 at Boston Airport.

BuAer requested Naval Research Laboratory to develop radar guidance equipment for assault drones, which later led to development of guided missiles.

VPs 73 and 74 began routine air patrols from Iceland over North Atlantic convoy routes.

1942 First carrier action in Guadalcanal campaign.

USS *Wolverine*, one of two Great Lakes excursion ships converted for aviation training on Lake Michigan, commissioned.

Commander in Chief, U.S. Fleet directed that an

AUGUST

Aircraft Experimental and Developmental Squadron be established to conduct experiments with new aircraft and equipment. Successful demonstration by USS *Cleveland* of radio-proximity fuze against aircraft led to mass production of the fuze.

1943 SecNav established the office of the Deputy Chief of Naval Operations (Air) with responsibility for "the preparation, readiness and logistic support of the naval aeronautic operating forces." Vice Admiral J. S. McCain was first DCNO(Air).

Formation of combat units for employment of assault drone aircraft began when first of three Special Task Air Groups (VKs) was commissioned.

1944 CarDiv-11 commissioned at Pearl Harbor. Composed of *Saratoga* and *Ranger*, it was the first division commissioned for night operations.

Electric-powered rescue hoist on an HNS-1, tested at CGAS Floyd Bennett Field, demonstrated rescue of personnel from water and transfer of personnel and equipment to and from underway boats.

First night carrier air group was commissioned as CVLG(N)-43 at Charlestown, R.I.

Nonrigid airship K-111, operating with escort carrier *Makassar Strait* off San Diego, demonstrated refueling and replenishing of an airship from a carrier: time, 72.5 hours. Airship's crew was relieved every 12 hours and airship's engines operated continuously.

1946 Office of Naval Research established.

Instrument Flight Standardization Board established at NAS Anacostia under DCNO(Air) to improve instrument flight proficiency of pilots.

1947 Naval Air Development Station, Johnsville, Pa., established. The station became NADC Johnsville in August 1949.

1948 CNO requested BuAer to outfit patrol squadron aircraft with ASW equipment.

1950 Korean War operations by U.S. aircraft carriers, and Navy and Marine Corps aviation units began.

1951 Navy's sonic research plane, the D-558-2 *Skyrocket*, reached 79,494 feet over Muroc, Calif., the highest altitude achieved by man to that date. On another flight, *Skyrocket* reached a speed of 1,238 mph.

1952 Naval Air Special Weapons Facility was established at Kirtland AFB to participate in program to apply nuclear weapons to naval aircraft.

1955 VX-3 began operational evaluation of mirror landing system installed aboard *Bennington*, making first day and night landings.

1956 An F8U-1 *Crusader* set new speed record of 1,015.428 mph at China Lake. This production-model carrier fighter, equipped with full armament of 20mm cannon and dummy ammunition was first operationally equipped jet plane to fly faster than 1,000 mph.

1957 In first shipboard testing of the automatic carrier landing system, an F3D *Skyknight* landed on USS *Antietam* at sea off Pensacola.

The Martin-Baker ground level ejection seat, under evaluation by Grumman for the Navy, tested at NAS Patuxent River. Lt. Sydney Hughes, RAF, successfully ejected from an F9F-8T flying just above the ground at 120 mph.

1959 HMM-261, operating from *Thetis Bay*, completed a week of relief operations in flood-stricken Taiwan.

1960 *Aerobee* rocket, instrumented to study the ultraviolet spectrum of the sun, was launched at White Sands Missile Range.

In first recovery of an object after orbit, an HRS-3 recovered instrumented capsule discharged by *Discoverer XIII* on its 17th pass around the earth.

1961 *Iwo Jima*, first amphibious assault ship to be designed and built as such, commissioned at Bremerton.

1962 Last flight of a Navy airship, at NAS Lakehurst.

Naval Air Reserve squadrons called up in October 1961 were released from active duty, reducing strength of Naval Air operating forces by 18 squadrons and almost 4,000 officers and men.

1963 F-3B *Demon* launched a probe from a nearly vertical attitude at 30,000 feet over Pacific Missile Range. The *Sparroair* reached peak altitude of 66 miles, in the first of five planned space probes to measure ultraviolet radiation of stars.

In joint Weather Bureau-Navy project *Stormfury*, an A-3B *Skywarrior* seeded Hurricane *Beulah* with silver iodide particles in experiment to determine whether energy patterns of large storms could be changed. Results were indefinite.

1964 Aircraft from Seventh Fleet carriers *Constellation* and *Ticonderoga* began action along the North Vietnam coast to protect our rights in international waters.

USS *Boxer* (LPH-4) and two LSDs arrived off the coast of Hispaniola to aid and evacuate people of Haiti and the Dominican Republic, victims of Hurricane *Cleo*.

1965 Barrier air patrol over North Atlantic ended when a VW-11 *Warning Star* landed at Keflavik, Iceland. A new and advanced radar system took over.

Gemini 5 astronauts Gordon Cooper and Charles Conrad were picked up by Navy frogmen and taken aboard *Lake Champlain*.

1966 *Hornet* recovered second unmanned spacecraft of *Apollo* series.

1969 HT-8 and other aviation units assisted in emergency caused by Hurricane *Camille* on Gulf Coast near Gulfport, Miss.

1971 Naval air training reorganized and all naval training consolidated under the new Chief of Naval Training.

PEOPLE PLANES AND PLACES

"Everything happens to lieutenants and should," is a sometimes used statement. 1st Lt. John Goodman of Yuma-based VMA-223 lived up to the words in a different way recently when he completed CompEx-76 as the 3rd Marine Aircraft Wing's ace. Goodman, an A-4M pilot, finished the week-long competition air strike exercise with 933.8 points, more than 50 points ahead of his closest competitor.

Formerly the backup quarterback behind Billy Kilmer on the New Orleans Saints (1967-68), Goodman was also on the winning team, *Bulldog Four,* which cinched first place with 3,085.2 points.

A VF-142 *Tomcat* intercepted a Soviet *Bear* observing *America's* Task Force en route to the Mediterranean. Originally a West Coast F-4 squadron, VF-142 transitioned to the *Tomcat* in early 1975 and moved to NAS Oceana.

VA-122, Lemoore, has begun a program specifically designed to increase cost awareness of equipment by stenciling the price on each individual piece of gear. It's an effort to make the users appreciate and take better care of the equipment and, in the long run, save the Navy and the squadron money.

In August 1975, VP-40 pioneered a new concept in squadron deployments. Departing from the traditional full squadron, six-month operational tour, VP-40 maintained a three-plane, four-crew detachment at Adak for nine months. Operating from both Moffett Field and Adak, the squadron conducted 24 SAR and medevac flights and was instrumental in restarting ASW flights from Adak.

Lt. Frederick Sautter, HSL-31, has been named the Navy Helicopter Association's Pilot of the Year for his actions during the evacuation of Americans from Cambodia and Vietnam.

Lt. Sautter, then OinC of HSL-33 Det 4, supervised the salvage of 16 Vietnamese H-1 helicopters. He piloted two of the aircraft to safety and completed a medevac mission in a damaged helicopter, saving a refugee's leg from amputation. He volunteered to board a Vietnamese ship and later was given custody and command of the ship for its transit to the Philippines.

Changes of command:

VTC-21, Little Creek: Cdr. C. A. Chaires relieved Cdr. J. C. Kessler.

Franklin D. Roosevelt: Capt. R. P. Bordone relieved Capt. C. A. Easterling.

NAS South Weymouth: Capt. F. E. Sequeira relieved Capt. H. L. Cassani.

VT-26, NAS Chase Field: Cdr. C. E. Hill relieved Capt. T. F. Kopfman.

Aviation Supply Office, Philadelphia: RAdm. V. T. Edsall relieved RAdm. Philip Crosby.

VP-19, Moffett Field: Cdr. G. R. Schroeder relieved Cdr. K. J. Frederick.

NARF North Island: Capt. L. L. Ham-

mond relieved Capt. L. R. Sarosdy.

VAW-116, Miramar: Cdr. D. D. Gingles relieved Cdr. R. H. Martin.

AVCM Harvey Murphy will relieve MCPOF Joseph Talley this month as the Naval Reserve MCPOF.

NAS Patuxtent River: Capt. C. R. Gillespie relieved Capt. E. V. Laney, Jr.

NADC Warminster: Capt. C. M. Rigsbee relieved Capt. G. M. Yowell.

VQ-4, Patuxent River: Cdr. Wesley May relieved Cdr. L. D. Peterson.

Changes of flag officer command include:

Adm. M. F. Weisner to CinCPac

Adm. T. B. Hayward to CinCPacFlt

VAdm. R. B. Baldwin to ComSeventhFlt

VAdm. R. P. Coogan to ComNavAirPac.

Naval Air Systems Command: RAdm. F. H. Baughman relieved RAdm. R. S. Miller as Vice Commander.

Records:

Aboard *Saratoga:* VA-37 *Bulls* completed five years of accident-free flying (more than 24,500 flight hours) when Ltjg. Mark Porter landed his A-7. Cdr. R. W. Hamon, X.O., completed 900 carrier landings on the same deployment.

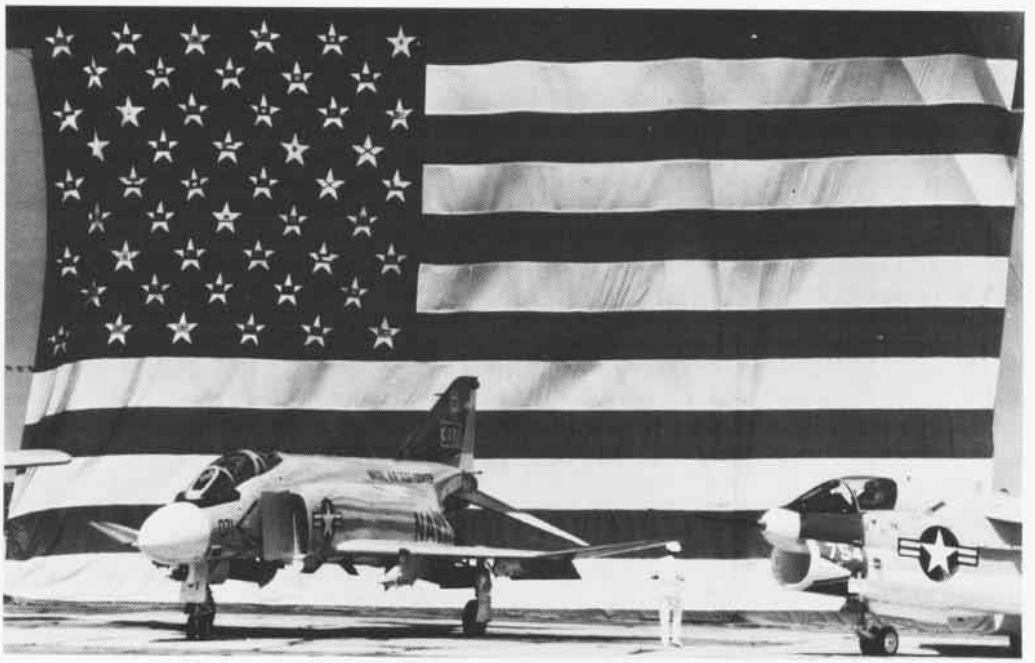
In January, VP-49 *Woodpeckers,* NAS Jacksonville, counted 14 years of accident-free flying, over 107,000 flight hours, in the P-3C.

VS-32, Cecil Field, recently completed its first carrier qualifications with the *Viking* on board *Nimitz.*

This bicentennial flag fabricated at NATO Patuxent River weighs 125 pounds and measures 39 by 71 feet. Each star contains a state flag, arranged in order of admission to the Union. The project, started by Ltjg. John Brouillette, Ens. Reggie Shribbs and SN Mary Fourcade, was completed by Patuxent River volunteers in time for the Fourth of July celebration. Photo by PHAN Jay Sammon

Students at the Noblesville, Ind., High School are building a flyable three-quarter scale Douglas SBD dive bomber —from a set of model airplane plans. The *Dauntless,* which will carry two passengers, is the third aircraft built by Nobles-

ville students in the past seven years. Under construction about three years, about another year of work will be required before its first flight test. Instructor Don Roberts explains aerodynamics and construction of the craft to two of his students and OS2 D. L. Hillard.



Piece of Cake ...

Thanks for sending us the cake, Mom.

I dub thee Sir Cake!

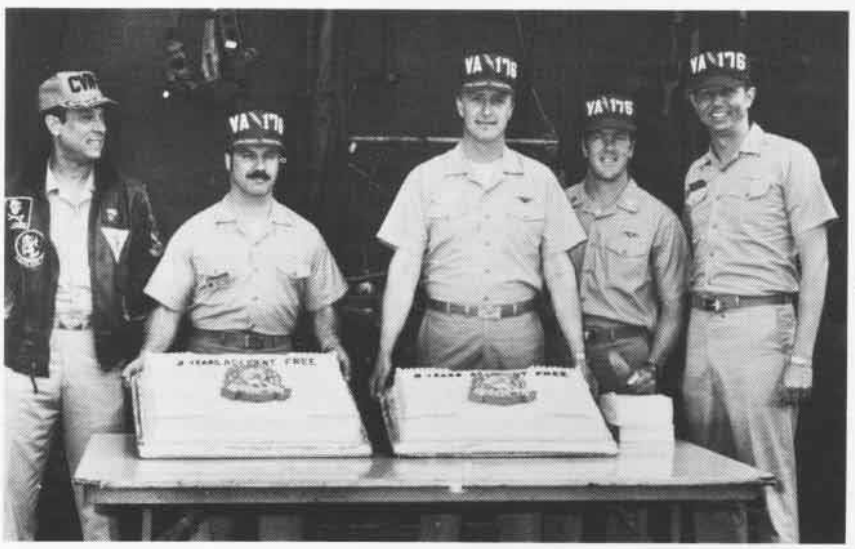
Look, you take from here to there, I'll take from there to there and what's left we'll give to the troops.

Nick my hand one more time, pal, and I'll lift this culinary delight right into your face.

I know the sword is stuck, dummy. Just tell me how to get it out!

I said let ME cut it!

Get the Chief in here! He'll fix it.



I used Duncan Hines, he used Betty Crocker.

A Stands for Air

A is for apple . . . B is for boat . . . C is . . . . How do you teach ABCs to 200 squirming five-year-olds, make it relevant to the world around them and still manage to hold their attention?

One way is to take the children "where the action is," and that's exactly what the staff at Alava Kindergarten did.

Looking across the sparkling water of Subic Bay, Republic of the Philippines, from the school's Waterfront Road location, the children see "where the action is." They watch as a jet airplane roars off the NAS Cubi Point runway, banks to the left and streaks through the clear blue sky.

During a recess from their classroom studies recently, the kindergarteners journeyed to Cubi Point by bus and spent half of a day visiting with the men who run "the largest overseas naval air station."

They learned the ABCs of aviation firsthand in the departments where some of their fathers work. They went aboard a C-117 and a CH-46. They examined survival equipment.

Plopping himself down aboard the C-117, one boy wondered why the seats faced backward toward the plane's tail section. Not waiting for an answer, he said, "I'm going to ride back to the states on this plane."

Another lad tried on an oversized helmet and slipped into the pilot's seat of a *Sea Knight*. Wrapping his small hand around the control stick, he pretended to fly the helo.

A shy girl hesitantly entered the cockpit of the C-117 and stared in awe at the dash crammed with gauges and switches.

Outside, near a hangar, one of the students clambered into a life raft and bounced on the edge. "I've got one

Story and Photos by
JO1 Mike McGougan

Station

like this at home in my backyard," he exclaimed.

"You do?" a Navy man questioned.

"Yeh," the boy retorted, "only mine's not as big as yours. You goin' swimmin' in it today?"

"I hadn't planned to," the sailor replied, smiling as he explained that the rubber life raft "does not serve the same purpose as your backyard plastic swimming pool."

At the naval air station's operations department, the students visited the crash crew and learned that these men are always ready to assist should an aircraft crash or catch fire on the runway.

Highlight of the tour was the visit to the control tower where the kindergarteners viewed aviation operations from the top.

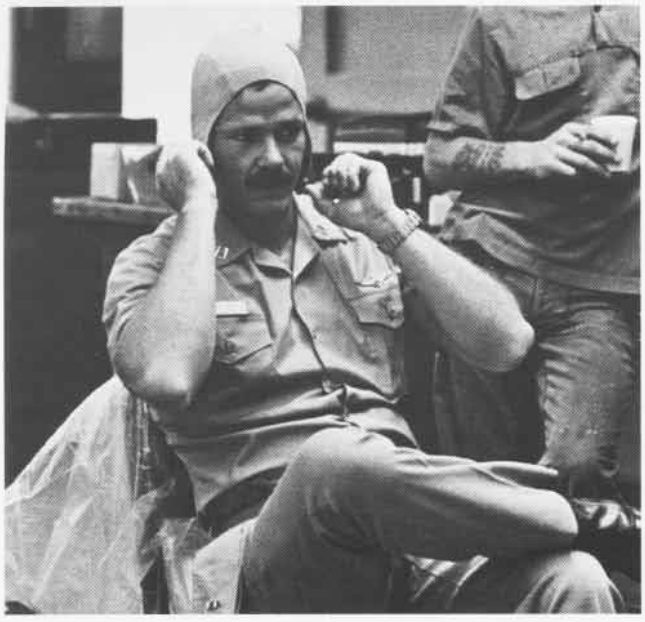
One petite lass with a ponytail sat on the counter next to the control panel in the tower listening through headphones to the conversation while an air controller guided a pilot to a landing. Her eyes grew bigger and bigger as the plane made its approach.

Excited five-year-olds crowded up to the control tower window and pointed at the runway as the jet touched down.

"We're really fortunate to have places like the naval air station right at our doorstep where the children can relate directly to the world around them," said the teacher, Kaye Foster, as the children boarded busses for the trip back to their school.

"Can you imagine trying to teach the things the children have learned here today in the classroom?" she asked.

Now when the kids say their ABCs, the first letter of the alphabet not only signifies apple and Alava Kindergarten, but also air station and aircraft.



CUSTOMIZED

By Lt. Riley McFetridge
Photos by PH2 Don Friedman

Navy pilots attached to NAS Oceana, Va., fighter squadrons are being treated to an unusual experience, a new method of head shrinking. The process is reminiscent of a Dr. Frankenstein operation replete with steel skull caps, clamps and strange chemical concoctions. But the transformation will ultimately improve their flying comfort, safety and efficiency.

At Oceana, forces are at work tailoring existing flight helmets in such a way that fighter pilots and RIOs will have their own customized headgear.

Progress in aircraft design and capability necessitates marrying aircrew equipment with a particular weapons system. Thus the demand for close-fitting helmets to lessen the stresses imposed on aircrews by present-day sophisticated tactical aircraft renders the old system of adhesive-backed padding of helmets obsolete.

The method of transforming the present APH-6 helmet into a form-fitting one involves using the skull as an integral part of a mold—to produce an exact cranial impression of each individual.

The 30-minute experience begins when a three-sizes-too-small, scalp protective rubber bathing cap, silicone-treated to resist chemical reaction, is drawn tightly over the scalp. As you wait for Excedrin headache number 99 this rubber vise squeezes your head. Then a clumsy-looking, heavy cast iron and steel ring is strapped to your head. It will support a mold which is then clamped into place.

After careful alignment, you are ready for the magic liquid solution. It is poured through a small opening which has been left in the top. As the chemicals are carefully measured from the test tubes and quickly mixed, an eerie feeling creeps into your mind. As quickly as the liquid is poured, sloshed and swirled around the mold, the desired chemical reaction is

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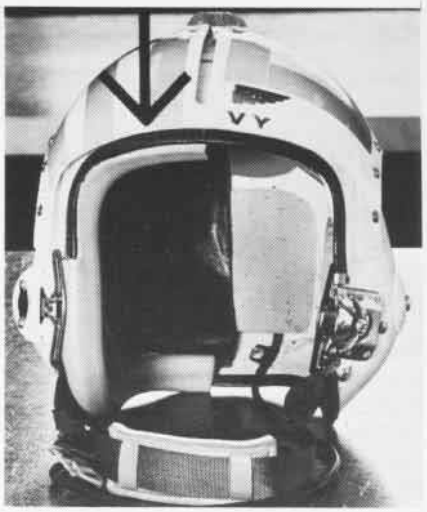
By Paul Altman, NavAirSysCom

Throughout the past 65 years, the evolution of one piece of flight gear has remained more personal and controversial to flight crew members than, perhaps, any other.

The item is headgear. The problem is in meeting the pilots' desires while adhering to rigid safety and operational demands and equipment specifications. In reality, it's the adage of pleasing some of the people some of the time, but never all of the people all of the time.

There are, however, personnel at work in the Naval Air Systems Command who are hopeful their endeavors will provide an interim solution.

The course of helmet development has been very gradual, from the beginnings of Naval Aviation in 1911 until today. The need for cranial protection became obvious when an increasing number of head injuries were sustained in aircraft accidents. In those



Lt. Pete Strickland, VF-41, stretches silicone-coated cap over his head. A modern Frankenstein emerges as cast iron and steel ring is positioned to support the mold. Final adjustment is made by Bill Engbrecht and the mold is added. Then the foam solution is poured into top of mold. The foam expands, seeps out, and hardens enough to allow student to cut off excess. Final product shows right side (arrow) of helmet containing form-fitting foam and soft, rounded, rubber edge roll.

HEADGEAR

achieved. The expansion, as well as the uncomfortable heat — over 135 degrees — begins. As the ever-expanding goo seeps into every nook and cranny along the contours of the skull, you become aware of what the rack of old must have felt like. The goo continues to expand and starts to ooze out through the top of the mold.

Finally, the mold is removed. It is allowed to set for 24 hours. It doesn't take you that long to recover, fortunately. After the one-day period, the product is sawed in half. The edges are smoothed out and the molded product covered with soft leather. The shell is prepared within the squadron by aviation survival equipmentmen.

Supervision and demonstration of each pouring of the PRU-39/P form-fit helmet liner is carried out by one man, Mr. Bill Engbrecht. He has the only set of Navy molds, pending delivery of additional ones, and professionally explains all the exacting processes involved. When he demonstrates a pouring, each squadron sends a representative to the aircraft intermediate maintenance division to aid in processing the rough molds. The bulk of the finishing work is accomplished at the squadron level. VFs 103 and 31 were the first squadrons on the East Coast to equip their pilots with the form-fit helmets.

The APH-6 is stripped to the fiberglass shell by removing the foam liner, all hardware, visor hold and mask fittings. The hole previously required by the old butterfly clips is filled and the fittings for bayonet type connectors are installed. The leather-lined halves are then carefully fitted into the helmet and held rigidly in place with a soft, rounded, rubber edge roll.

Pouring the mold takes only 30 to 45 minutes, but the production of a finished, form-fit helmet requires about 15 man-hours. At present every helmet liner is either poured or supervised by Engbrecht, a retired navy parachute rigger. Future plans are for all liners and other APH-6 modifications to be completed at the AIMD level.

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pioneering days, a one-piece helmet was used. It consisted of an outer shell and sponge-rubber padding covered with chamois. The design was most likely influenced by football headgear. Over the years, changing operational demands and the availability of new materials have greatly influenced helmet development.

Requirements were summarized in J. S. P. Rawlins' "Designs of Crash Helmets" in 1956: ". . . give protection against penetration and abrasions and deformation of the skull; provide a reduction of rotational, average linear and peak acceleration; provide absorption of kinetic energy and distribution of impact."

He added that helmets should be tough and rigid, not elastic. The helmets should be smooth and have a low coefficient of friction to facilitate sliding over the opposed surface with uniform deformation, it should even out the acceleration curve and convert kinetic energy to energy of compression or extension. Further, helmets should spread the blow as widely as possible over the head. Vision should be unobstructed. The head should be free to move. Compactness and lightness of weight should be considered. Contoured fit, positive retention and compatible communication are vital.

Another factor of concern was camouflage effect. Would visibility needs

conflict with camouflage? Protection against light radiation by atomic flashes and laser beams had to be evaluated.

Incorporation of each of these ideal characteristics in a single unit would be impossible. Satisfying one requirement might make it more difficult to achieve others. It is reasonable to assume that if all the factors were incorporated, the larger, heavier or more cumbersome the helmet would be. A possible solution to this dilemma would be judicious compromises.

Experience has shown that final decisions on the extent of the compromises are difficult. There are too many varying viewpoints regarding the order of priority of protective devices. However, alternatives to compromise must be carefully studied. One possible solution is to design separate helmet types according to the needs of the user.

Another option, applicable to the aircrewman, is the adaption to man-machine compatibility, "the shirt-sleeve environment," as a fundamental concept of aircraft design.

While the most important function of a crash helmet is protection, it is also used to satisfy other pilot-mission requirements. Of particular importance is the need to pay adequate attention to the man, the man's mission, and to the requirements for maximum mental and physical efficiency and safety. Judgment must be made on the basis of broad experience. A proper balance between protection against hazards and overprotection that impairs performance should be achieved. A 1969 article by Dr. C. L. Ewing and A. Marshall Irving titled "Evaluation of Head Protection in Aircraft" stated that three separate requirements of a general nature must be met when evaluating human protective equipment: user acceptance, function and functional non-interference. Or stated simply: Will the wearer use it? Will it protect him against the threat? Does it interfere with normal and necessary user functioning in performance of the mission?

Several years ago some criticized the APH-6 series helmet as being out-of-date in "basic protection need." NavAirSysCom and the Naval Air Development Center embarked on several different time-phased efforts to provide the fleet with lightweight, low-profile, high-stability protective headgear without compromising the mission.

Operational and safety requirements necessitated adding to the original APH-6 new features such as dual visors and sound-attenuating ear-cups. Then, other advancements, such as the visual target acquisition system (VTAS), required that the APH-6 permit mounting of the sight unit. While the benefits derived from these added features are significant, the excessive weight and bulk produce helmet instability under high-Gs, restrict vision, are uncomfortable and limit overall aircrew efficiency. Films of F-4 pilots and RIOs in actual air combat maneuvers graphically portray the design deficiencies of the present helmet, showing the restricted field of vision and the poor retention properties in the high-G environment. Pilots were constantly having to look above and to the side. If a pilot allowed his head to tilt too far under severe G loadings, he had extreme difficulty in keeping his target in sight.

Head and eye protection, sound attenuation and provision for oxygen and communication systems are listed as primary functions for new helmet designs. The helmet also has to be compatible with VTAS and integration of eyeglasses without interfering with the oxygen system and sound attenuation properties.

Currently, the APH-6 single-visor helmet is standard for all fixed-wing aircraft flyers. Squadron pilots, flying F-4s are the exception to this. They are equipped with VTAS which, by means of cockpit and helmet-mounted sensors, enables the pilot to command onboard missiles and tracking radar according to his line of sight. This facilitates acquisition and target attack. The F-4 VTAS-equipped squadrons are currently using the following:

HGU-30, 30A/P — lightweight helmet with form fit (commercial or USAF type) plus "Granny Glass" VTAS electronic.

HGU-37/P—parabolic visor VTAS electronics on any APH-contoured helmet with form fit (commercial or USAF type).

APH-6E — single visor with USAF form fit. Also in the fleet are form fits procured by the users directly from commercial sources.

Early in 1975, NavAirSysCom and the F-4/VTAS community agreed to standardize helmets and to provide custom-fit liners to increase helmet stability under air combat maneuvering conditions. PMTC was tasked by NADC to standardize and retrofit the helmets.

Currently, the USAF's form-fit liner and externally mounted oxygen receiver (recently evaluated by Navy pilots) are being introduced. They can be retrofitted for most APH helmets.

The Pacific Missile Test Center is helping instruct squadron level maintenance personnel in the foam-in-place liner technique and retrofit procedures for helmets equipped with the VTAS. Training in these procedures will also be given at the Aircrew Survival Equipmentman School at Lakehurst.

The critical element is logistics of hardware, since all publications have been prepared and ground support equipment has been procured from the USAF by the F-4 weapons system manager. The GSE was strategically placed by the program manager at 27 intermediate maintenance activities in January for support to VTAS. The chemicals, leather fitting kits and oxygen receivers are stock USAF items but, prior to any Navy drawdown, arrangements have to be made for proper USAF support.

In the medium-range future plan, at least 18 months, is the operationally suitable and effective HGU-33/P lightweight form fit and HGU-34/P lightweight padfit.

As a result of the long-range development program, NADC will begin operational testing of a form-fit liner which will provide a more exact alignment of the helmet in 15 minutes. This liner is being designed to be interchangeable with the USAF system in the HGU-33/P and will utilize the USAF chemicals.

In this time frame, tri-service communication and oxygen aircraft/personal equipment interface is expected.

Under the long-range program — four years or more till fleet delivery — are the integrated oxygen helmets with and without VTAS, other helmet-mounted devices as required, specialized helicopter helmets, and further research into the man-machine-sharing protective device and high-G cockpit.

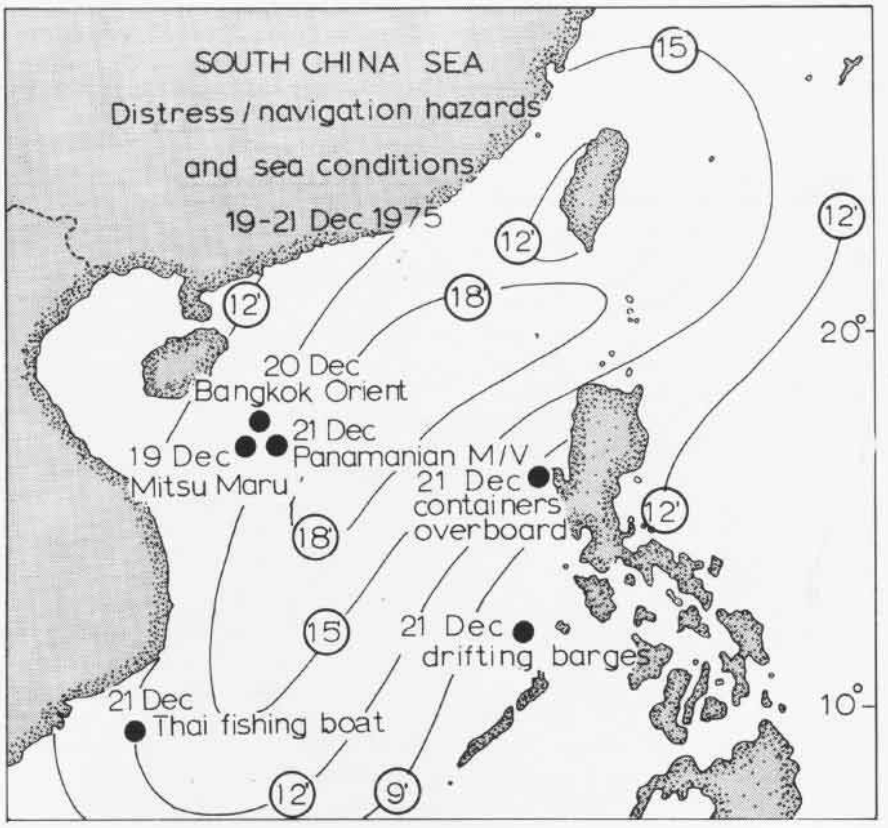
WestPac Monsoon

By Commander Neil O'Connor

There are three seasons in WestPac: northeast monsoon, southwest monsoon and typhoon. The northeast monsoon and the typhoon are the most disruptive. In 1975 it was the unheralded northeast monsoon that created the greatest number of surprises. One reason was that while most mariners have learned to give a wide berth to the typhoon, the same is not true of the northeast monsoon. Yet it can arrive in an aggressive mood.

The northeast monsoon is, of course, the principal dynamic meteorological factor that controls the WestPac winter. This nugget of scientific detail was brought to the attention of the readers of *Naval Aviation News* by this author in "Vietnam and the Northeast Monsoon" which appeared in the November 1966 issue. Since that time the political winds of Southeast Asia have shifted, but the northeast monsoon continues to govern WestPac weather during the cold season. With the Navy still operating on and flying the skies of the South China Sea, it was considered worthwhile to revisit the northeast monsoon, particularly after the winter of 1975-76. The inspection found the northeast monsoon surprisingly vigorous and even more hazardous than previously remembered.

For those who have experienced it, the northeast monsoon has many faces. For those who have yet to encounter it, let it be said that the northeast monsoon is a completely unique weather regimen. Perhaps it would be



There were six serious incidents in the South China Sea from December 19 to 21. Average seas ranged from 9 to 18 feet, with a maximum sea of about 20.

well to review the features of the phenomenon, just to put it in proper context.

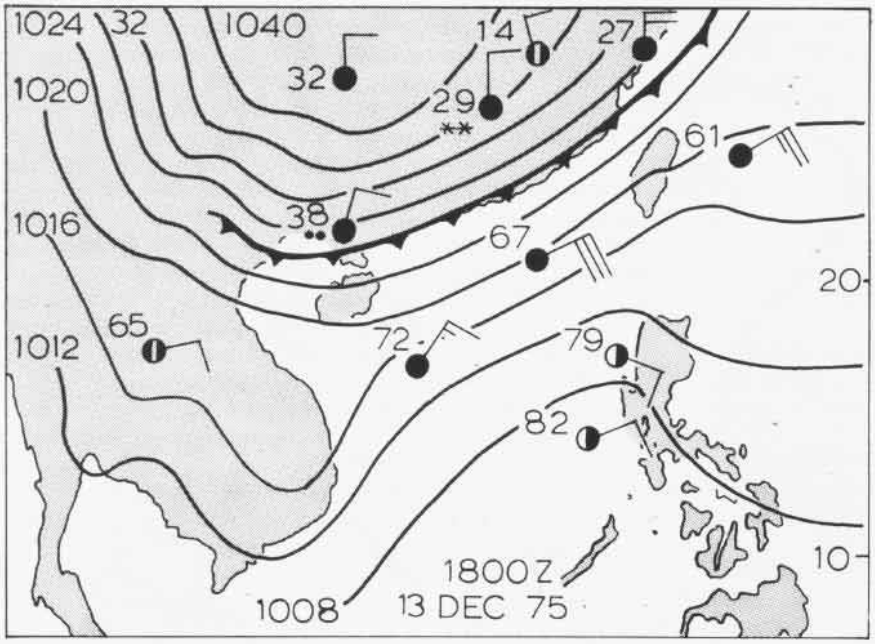
From November through March, outbreaks of cold dense polar air in the form of large high-pressure cells push southward out of Siberia and into Southern China. The clockwise circulation of winds about these anticyclones results in the flow of cold northeasterly surface winds from Japan southward across Okinawa, southern China, the Philippines, the South China Sea and Southeast Asia's peninsula. Monsoon was derived from the Arabian "mawsim," which translates into the English word season.

One of the more interesting characteristics of the northeast monsoon is its pulsating nature caused by intensification or lessening of the atmospheric pressure field over Siberia and China. Pressure increases when cold, dense arctic and polar air surges southward. It diminishes during the transit of migratory low-pressure cyclones that travel the storm track from the mainland of Asia, south of Japan and eastward into the Pacific. It is during the periods when high pressure dominates the south central portion of China that the South China Sea is whipped into a frenzy by gusty surface winds of 35 to 45 knots. Depending upon the intensity of the pressure gradient, this tempestuous condition can prevail for only a few hours — or nearly a week. The latter was the case early in the 1975-76 season when frigid polar air, preceded by a broad cold front, pushed southward out of Siberia and almost drove to the equator before it finally thawed out.

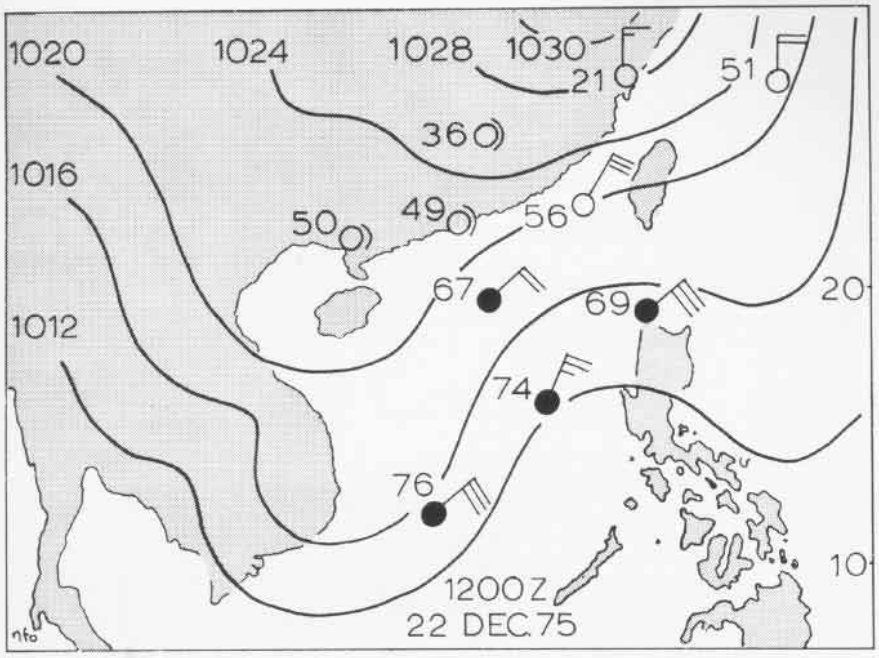
It quickly became apparent in early December that the northeast monsoon of 75-76 was going to be something different. Seventh Fleet ships in Hong Kong, about 100 miles farther south than Key West, Fla., were among the first to know. During the early morning hours of December 12, the temperature dropped to an unprecedented low of 39.7 degrees F. at Hong Kong's Royal Observatory. (The previous low temperature for December, 40.6 degrees F., was recorded in 1896. The minimum December temperature at Key West in 1886 was 41 degrees F. according to the National Oceanic and Atmospheric Administration.)

As the frontal system worked its way southward, winds and waves increased in the South China Sea. To the southeast of shivering Hong Kong about 650 miles, Navy personnel at NAS Cubi Point were enjoying a typical Philippine winter day with the temperature in the mid-80s. Two days later, with small craft warnings unfurled, the Hong Kong cold front passed, bringing considerable cloudiness and ceilings of 1,000 feet. The big change was a seven-degree drop in temperature the following day, a decrease in relative humidity and a sharp increase in gusty northeast surface winds. The fresh chill brought out sweaters by the liberty parties en route to an evening's outing in Olongapo.

Meanwhile to the north, strong winds continued to flow out of Siberia, which only strengthened the intensity of the high-pressure system over the Asian mainland. Meteorological records throughout WestPac continued to topple. On December 17, the weather station at Kushiro, on the east coast of the northernmost Japanese island of Hokkaido, reported an all-time rec-



A cold front moved southward out of China into the South China Sea, the beginning of one of the coldest periods in Southeast Asia in many years.



Nine days after cold air pushed out of China, the South China Sea was still disturbed; compare temperatures of December 13. High pressure still dominated area.

ord 24-hour accumulation of 22 inches of snow.

About this same time, Rear Admiral T. J. Kilcline, Commander, U.S. Naval Forces Philippines, was having his own personal rendezvous with the northeast monsoon. A seasoned aviator, and a former C.O. of RVAH-11, RAdm. Kilcline described the turbulence encountered over northern Luzon as about the worst he had ever run into. His C-1, flying at 7,000 feet, experienced — in his words — "a sharp snapping type of sheer that whipped the aircraft 60 to 70 degrees from normal flight, and you really didn't know what to expect next!"

A week before Christmas, gale-force winds and seas up to 20 feet extended the complete length of the South China Sea, which made that stretch of the bounding main a veritable maritime disaster area as far as the commercial shipping and fishing industries were concerned. Fishing ships floundered, barges were swept away, and a U.S. merchant ship reported losing some of her containers from the main deck. Nine Japanese tuna fishermen, who had abandoned their sinking boat in the South China Sea, spent three harrowing days riding roller-coaster waves before being rescued. Things weren't much better ashore, according to the Pacific edition of *Stars and Stripes*. Over ten feet of snow blanketed northern portions of the island of Honshu. The accumulation was described by the Japan Meteorological Agency as the third worst since the end of WW II, and the heaviest snowfall since 1963.

As the surge of dense, unseasonably chill air continued its drift toward the equator, time and topography gradually eased some of the bite as the air mass very slowly warmed. Unfortunately for a few, it was not soon enough. Twenty premature infants in a Bangkok hospital died from exposure during the cold spell that engulfed Thailand. The tragedy occurred because of the lack of incubators in a country that usually experiences relatively mild winters.

Captain Prasert Soontarotok, RTN, Deputy Director of the Thailand Meteorological Service, indicated, in a discussion in Bangkok, that the northeast monsoon of 1975-76 had brought some of the coldest weather that Thailand had experienced in a quarter of a century. To support his contention, he provided a current local climatological summary that indicated record temperatures had been registered. The previous all-time low temperature in Bangkok was 56 degrees F. observed in 1951. This was surpassed by the 50.9 degrees F. of December 1975.

Mother Nature, in apparent deference to the Christmas holiday, relaxed her icy grip, and winds and seas abated while temperatures returned to normal for the period. The respite was short-lived, however. Another surge of cold polar air brought building seas and gale force northeast winds to the South China Sea to start off the new year. And so the pattern went for the rest of the winter.

Perhaps Thomas Mann, author of *The Magic Mountain*, had not experienced a WestPac cruise when he wrote, "Time has no divisions to mark its passage, there is never a thunderstorm or blowing of trumpets to announce the beginning of a new month or year." Had Thomas Mann viewed the fickleness of Mother Nature's offerings during last year's northeast monsoon, he might have had second thoughts on his comment.

NAVAL AVIATION NEWS letters

Caught Again

As for most Naval Aviators, flying a desk for a tour of duty has meant a greater reliance on your fine magazine for the latest news. Ever alert, in my cover-to-cover analysis of the March issue, I noticed two glaring oversights in your usually flawless publication.

"People, Planes and Places" twice refers to an EA-6B as an *Intruder*. Whereas we in the A-6 community have always referred to our mission as a team effort, we have not wished to overdo a good thing. The line has been clearly drawn in name, as well as in fact, between the two-man team in the A-6 *Intruder* and the four-man crew in the EA-6B *Prowler*.

In the same column, USS *Belknap* was referred to as a destroyer. Granted that it was just over a year ago that ship titles and designations were changed to make little ships sound bigger, old habits die hard. However *Belknap* was redesignated CG-26, a cruiser, vice DLG-26, a frigate, and never was a destroyer. Ordinarily, the difference would be inconsequential to someone more concerned with how many stacks a ship possesses in order to most effectively apportion one's bomb load. But staff duty has built strange alliances among aviators, submariners and surface warfare specialists alike. Little things like aircraft nicknames and ship type designation now begin to assume equal importance in the eyes of each.

Scott M. Crandall, Lt.
CinCUSNavEur Staff, Box 9
FPO New York 90510

Traps

In response to your note in the April "Editor's Corner," CVW-5 has several names to add to your distinguished list of 1,000 carrier arrested landings: Cdr. Jack L. Finley, CVW-5, January 1976 and Cdr. Gary L. Starbird, C.O. of VA-56, February 1976. During 1975: Capt. W. Lewis Chatham, then CAG-5; Cdr. T. R. Swartz, then C.O. of VF-161; Cdr. R. N. Artim, then C.O. of VA-56; Cdr. W. V. Roeser, then C.O. of VA-93. All counted the record landing aboard *Midway*.

CVW-5 personnel probably enjoy *NANews* more than our six-month cruise compatriots whom we see in WestPac every year and a half, or so. Keep up the fine work.

R. L. Ryon, Lt.
CVW-5 Admin Officer
FPO San Francisco 96601

Ed's Note: Thanks, the list is building and we plan to publish it in the future.

Congrats

Congratulations to Kiddy Karr for his warm article about Louis Maxfield's pet and the goings-on in lighter-than-air at Wingfoot Lake in 1917. While researching my book, *Shenandoah Saga*, I never came across a picture of Maxfield as appealing as the one in your April issue. He became the leading airship officer of the first generation of LTA men and was lost when ZR-2 crashed in England in 1921.

The Lt. Coil mentioned in the article later commanded the C-5 blimp which in mid-May of 1919 made a flight of 1,022 miles from Montauk, N.Y., to St. Johns, Nfld., in 25 hours, 50 minutes. The C-5 might have been the first to cross the Atlantic if it hadn't been wrenched from its moorings at St. Johns and blown out to sea; fortunately none of her six-man crew was aboard.

Thom Hook
Ferry Farms N.A.P.O.
Annapolis, Md. 21402

Reunions

USS Natoma Bay Association (CVE-62) will hold its reunion October 8-10 at Newport, R.I. Contact Leo J. Pagni, President, 119 Willowick Drive, Naples, Fla. 33940. A general invitation is extended to all CVE men.

VB/VPB-106: WW II *Liberator/Privateer* squadrons will hold a combined reunion in San Diego, Calif., August 12-15. Contact Gordon K. Ebbe, 2211 Wynkoop Drive, Colorado Springs, Colo. 80909.

Request

I am 17 years old and have been in the Cache program for about a year. I am extremely interested in Naval Aviation. I am trying to start a collection of naval squadron patches and histories, but don't know where to write. Could you please print my letter as a plea to squadron public affairs officers for them. I will appreciate anything I receive.

Thank you for putting out such an outstanding publication.

Kenneth Hackler
2704 Bockman
Pueblo, Colo. 81004

In Memoriam

Miss Gail Yurcina died in June 1976. Admiral M. F. Weisner, Commander in Chief, Pacific, wrote: "She was a truly unique individual who devoted her entire life to Naval Aviation. I considered this remarkable lady to be one of the most exceptionally capable and talented persons I have ever known. All Naval Aviators owe a great debt of gratitude to Gail for her lifelong dedication and continued persistence in improving Naval Aviation."

A former Wave, she joined Naval Aviation as a staff member of DCNO (Air) in 1953 and served there until her untimely death.

The roster of pilots for whom she worked and "helped educate to the Pentagon world" reads like a Naval Aviation Hall of Fame — Ellis, Pirie, Thach, Ramsey, Connolly, McDonald, Houser, Michaelis, Martin, Richardson, McCudden, Baldwin, Miller, McClendon, Coogan, Christiansen, Seiberlich, Outlaw, Minter, Aurand, Weisner, James, Moore, Feightner, Cassell, Butts, Carmody, Haak, Gillette, Davis, McKenzie, Weinel, South, Bringle, Kirn, Holloway, Cagle, Foley, Charbonnet, Ramage, Swanson, Engen, Guinn, House, Talley, Abbott, Geis, Riera, O'Neill, Isaman, Freeman, Shawcross — the list could go on.

For the past four years, she fought a very courageous but vain battle with cancer. She leaves behind a legend of personal dedication to Naval Aviation that will long endure.

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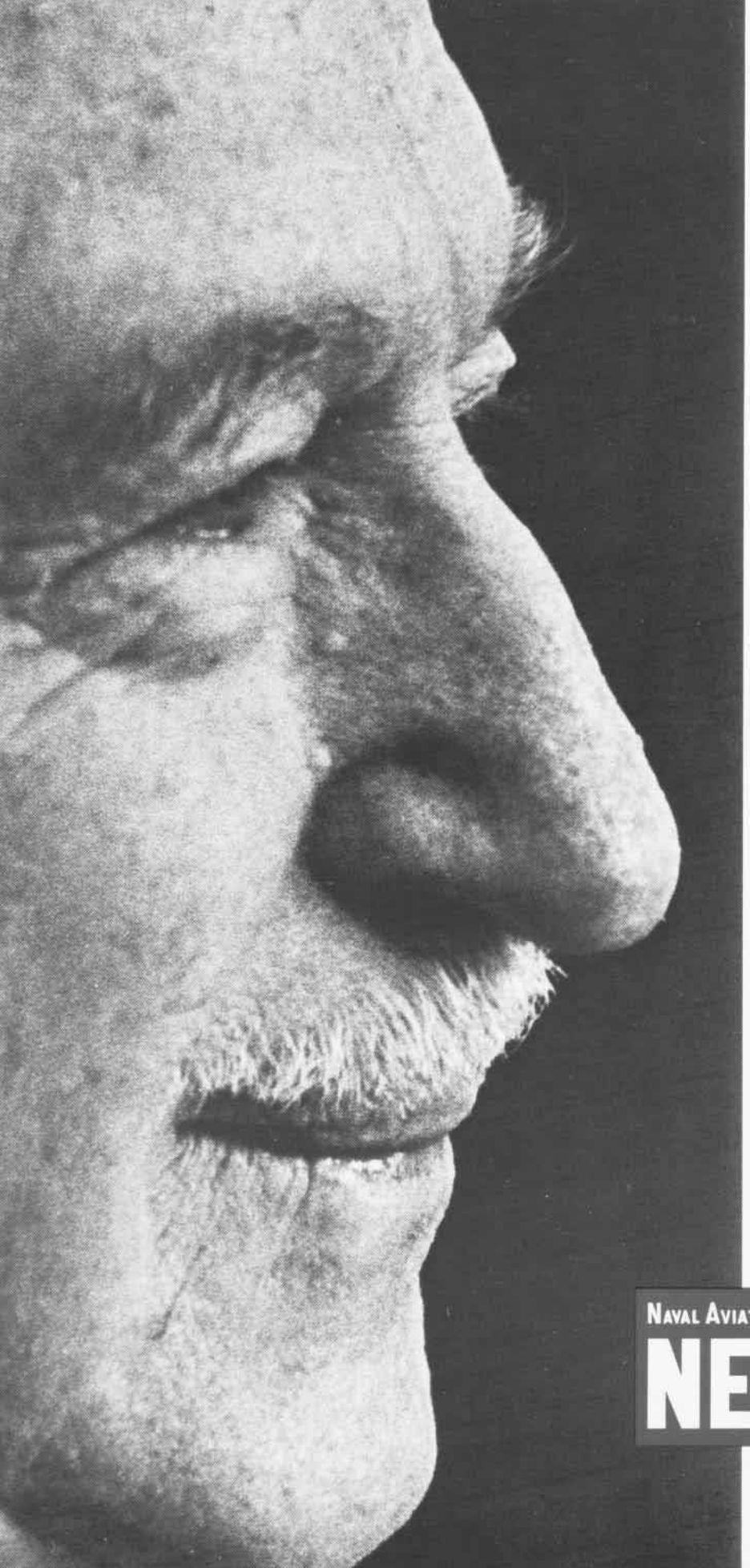
Fleet Aviation Specialized Operational Training Group, Pacific is located at North Island; its Atlantic Fleet counterpart, at Norfolk. VF-213 is based at Miramar and VT-29 at Corpus Christi.



'The trick was to land without bouncing, if possible, and to be going straight up the deck.'

A.M. Pride, Admiral, USN(Ret.)

NAVAL AVIATION
NEWS