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In this issue: Prologue to War . . . 1939

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Vice Admiral Richard M. Dunleavy Assistant Chief of Naval Operations
(Air Warfare)

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Capt. Steven U. Ramsdell Director, Naval Aviation History and
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COVERS — Front, VFA-151's Lt. William G. Lotz won the fourth bimonthly ANA Photo Contest with this shot of a VFA-195 F/A-18 Hornet up close. The clear rectangular glass in front of the pilot is the heads-up display. Back, JO1 Jim Richeson photographed the commissioning ceremonies of USS Wasp (LHD-1). See story on page 10.

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By Vice Admiral Richard M. Dunleavy, ACNO (Air Warfare)

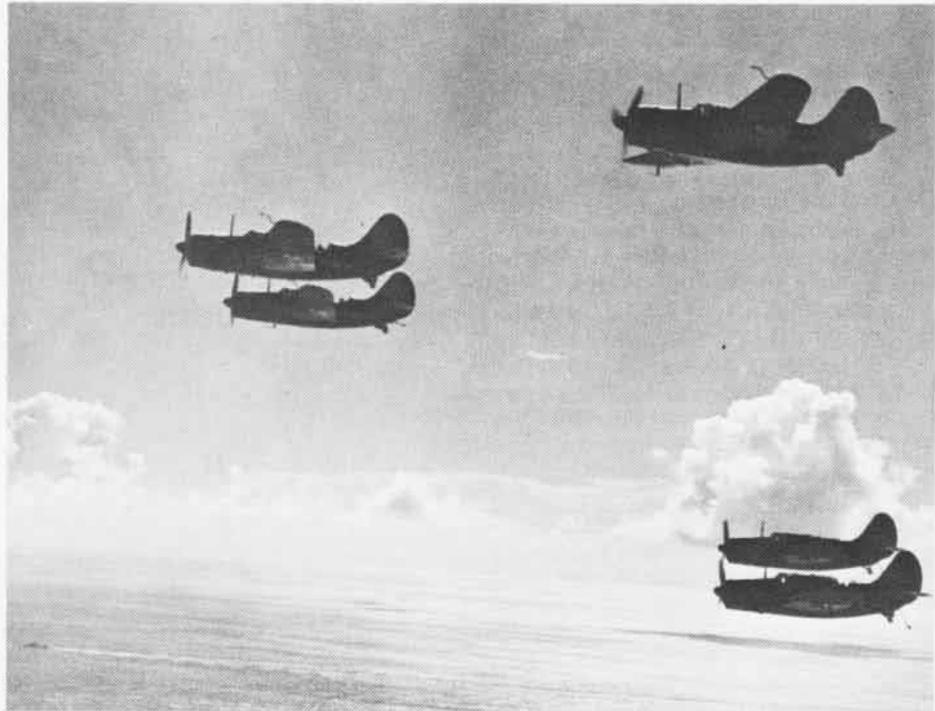
Prologue to War . . .

In this issue, *Naval Aviation News* begins a series which takes us back to the days of Coral Sea, Midway, the Philippine Sea, Halsey, Mitscher, McCain, O'Hare and McCampbell — the heroic days of Naval Aviation during WW II. Over the course of the war's 50th anniversary, which also begins this month, all of those great names and battles will come to life again, and we'll follow the action from start to finish. From my perspective and for a lot of reasons, this is really worth our attention.

First, it's important to remember these events and men for the inspiration they will always provide. Faced with a tyranny which would have destroyed everything we value, we had to fight and we had to win. There was nothing ambiguous or unclear about what was at stake. Nor can there be any doubt about how we won. Our victory was the direct result of the individual and collective valor and devotion to duty of the members of the Naval Aviation team — Navy, Marine, Coast Guard. We can always learn from their example.

For those of us in Naval Aviation, there is no other experience from which we can learn so much about our profession. This was the war in which Naval Aviation played the decisive role in destroying the carrier fleets of Japan, leading the drive across the Pacific, and coming to grips with the menace of Germany's submarine wolf-packs in the Atlantic. Not before and not since has the application of naval air power determined the outcome of a war for the control of a single ocean, let alone two. It still dominates the way we think about Naval Aviation.

Until we fight another all-out two-ocean war, WW II remains one of the best guides to our preparation for the next. Carrier strikes in the Norwegian Sea and the North Pacific are subjects of great interest today, but the only time they actually took place was during WW II. The weather and geography there haven't improved much in the meantime, and we may face those obstacles in the same locations again. During the war, Naval Aviation expanded from 7 to more than 100 car-



SB2Cs

riers, from 4,500 to 60,000 pilots, and from 3,500 to 41,000 airplanes. We'll be well served to study the problems solved during that miraculous transformation. If we pay attention to these lessons, we can avoid reinventing the wheel later.

Some of the most important lessons involve command in battle — the problem of making decisions in confused situations with incomplete and inaccurate information, when the hardest fact is that any decision will cost dearly. No one has found an easy way to decide whether spending lives now will save them later or a reliable formula to make any of the other decisions combat leaders must make. Nor has anyone found an easy way to fathom the depths of an enemy's intention and will. No one ever will. The best we can do is to understand and learn from the hard decisions leaders have made in the past — how they dealt with risk and uncertainty — how they responded to surprises. The story of Naval Aviation during WW II is filled with tough decisions. Many of them were brilliant, but no commander had a

perfect record. We can learn from them all.

The first article in the series, the one in this issue, is a snapshot of Naval Aviation in September 1939 which shows that the most important parts of the force that won the war were already on hand, on the way or on the drawing board. That point is of real interest. Frustrated by tightfisted budgets unimaginable today, and knowing that the world situation was getting much worse fast, the men and women of Naval Aviation in Washington and the fleet were not ready for war; we know they were ready to mobilize. Their efforts did count — in fact, made the critical difference, a fact that was apparent only after the war began.

It's pretty much the same way today. Buried in an office in the "puzzle palace," doing your time on a staff or sometimes even operating in the fleet during peacetime, it can be hard to know that what you're doing makes much difference. But take this last lesson to heart; I can assure you it does. Let's hope we don't have to prove it. Keep strokin'. ■

Fly By Wire

A section of A-6 *Intruders* was on a low-level flight in a scenic area of a foreign country. After completing a prebriefed simulated attack, the flight leader directed another attack on a "target of opportunity," a small dam in a narrow and rather steep ravine not far from the first target.

The lead pilot was at the pull-up point after the run when he saw power lines directly ahead of his A-6. Both crew members felt a thump. The bombardier/navigator then saw fuel venting from the forward edge of the right wingtip.

The wingman saw lead pull up rapidly and the fuel venting from the wing. Upon returning his attention to the target area, the wingman himself saw power lines immediately in front of him. He started to pull up but decided he could not clear the wires. He pushed the nose down and flew below some cables and above others without striking them.

Both planes made it home but lead's *Intruder* had struck a 7/16-inch-diameter aluminum steel cable which was supported by a pair of 360-foot towers on either side of the gorge. The cable was approximately 750 feet above ground level and was clearly depicted on the appropriate navigational charts.



Grampaw Pettibone says:

Woe is me! Will we ever run out of wire cutters? Doesn't happen that much but as sure as the swallows return to Capistrano, somebody's gonna play dodge ball with power lines now and then — and lose.

Even if your vision is 20-20 or better, those slender strings in the sky are tough to see and, on low levels 'specially, tough to hurdle.

Study the charts, know where the lines are, know where you are, and stay above 'em!



DR Doldrums

A T-39 *Sabreliner* had completed extensive rework including installation of an Omega navigational system. The crew launched on a ferry flight over a great expanse of water. En route, the *Sabreliner* lost all navigation aid reception and the compass system malfunctioned. The aircrew became lost and eventually had to ditch the aircraft at sea. Uninjured, all hands egressed successfully and were rescued.

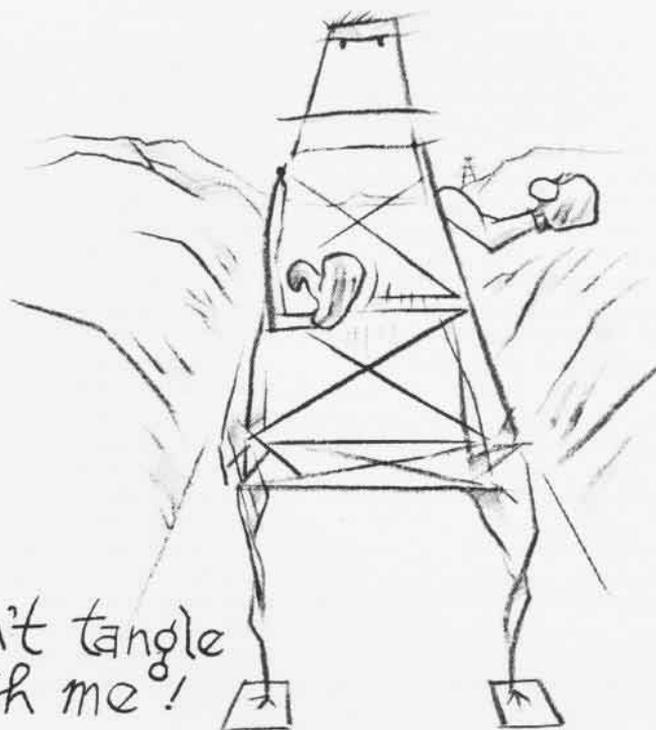


Grampaw Pettibone says:

The accident investigators put it this way. Cause Factor: Aircrew Error. "Lack of fundamental dead reckoning navigation competency."

There was more in the report . . . "poor lost plane procedures, ineffective aircrew coordination, inadequate knowledge of nav systems, poor pre-flight planning."

It's been some time since we've had a mishap where people got lost and had to dump themselves and their bird





clown pilots!



into the drink. Happened a lot in double u double u two. But it was more understandable then.

Tain't very understandable now. Aren't we all supposed to be a lot smarter and better trained? Over land or sea, EXPECT to lose your nav gear! Have a backup plan to get home safe and dry. If it doesn't fail, well, that's all to the better.

Tree Top Tangle

A two-seat F/A-18 Hornet was scheduled for an air-to-air radar evaluation hop. Prior to takeoff the nose wheel steering failed but trouble-shooters had supposedly corrected the problem. The Hornet got safely airborne but the gear handle would not move up. The white mechanical stop was visible in the landing gear control panel. The pilot reduced power and depressed the down lock override (contrary to NATOPS), removing the mechanical stop. He raised the gear handle and initiated a right turn.

The flaps were raised from half to auto and everything worked normally

except the nose gear remained extended. The pilot reduced power to preclude exceeding airspeed limits for the hung gear. While the main gear were extending, the engines were at idle, the aircraft decelerating. The rear

seater noticed ground closure and called, "Watch your rate of descent." The pilot went to military power, then maximum afterburner.

Ahead was a line of trees, about 100 feet tall. The aircraft struck the tops of the trees in a nose-high, wings-level attitude with little vertical velocity. The aircraft managed to land but the left stabilator sustained major damage. The left engine was severely fodded.



Grampaw Pettibone says:

Sometimes a minor emergency can turn into a bucket of cobras a la Indiana Jones. I know the Hornet is one fine flyin' machine and can do wonders. But it's no better than the human bein's in the cockpit. A 10 to 30-knot overspeed of the gear ain't as bad as hittin' the ground. The guy in the back could have been a little more help, too.

If you think you might have had the same kind of trouble in such a situation, better bone up on emergency procedures. Not too many of us like those squirmin' cobras.



mess



ICEX-1-89:



Survival in the Arctic

By JO2 Milinda D. Jensen

The arctic wind never ceases, buffeting aircraft and tearing loose anything not secured. Worse yet, it is lethal to humans. The wind will freeze flesh in minutes, sometimes seconds. It blows snow and ice in such quantities that visibility can be reduced to a foot or less. A man lost in an arctic storm is helpless and will die if shelter is not found quickly.

LCdr. Bill Cox contributed to this article.

"My biggest worry as the officer in charge of ICEX-1-89 was that one of my planes would have to ditch on the

ice," said Lieutenant Commander Bill Cox, special projects officer for Commander, Patrol Wing Five (ComPat Wing-5), NAS Brunswick, Maine. There is cause for concern anytime a plane ditches, but when you're in a deadly climate, flying with survival kits prepared for the tropics, concern for survival intensifies. The Navy has no standard issue survival suits and equipment for the arctic climate. "Next year we hope to have five or six prototype survival suits/equipment for testing in the arctic," LCdr. Cox added.

With over 1,200 flight hours over the ice, and 140 tactical and scientific missions logged, the March-to-May arctic operation was conducted in the eastern arctic basin.

The participating units included a large cross section of the U.S. East Coast P-3 fleet and both east and west coast Canadian CP-140 units. The USAF's 1012th Air Base Group, Thule AFB, Greenland, was the home of base operations, providing an airfield and communications and logistics support. At the peak of the exercise, the Thule detachment included over 320 personnel and 11 aircraft. An extensive group of scientists and engineers representing naval research commands rounded out the arctic venturers.

Although the military has been involved in arctic research for over 20 years, the main purpose of this effort was to provide insights into the specific nature of a variety of acoustic and nonacoustic environments as they relate to the world in, on and under the

ice. "With the possibility that the arctic could one day become a major field of operation, we need to know certain things," LCdr. Cox emphasized. During ICEX-1-89 data was gathered to develop the ability to track submarines beneath the ice. Sonobuoy research and development, and tactical problems such as high-latitude navigation, proper employment of tactical displays in northern latitudes and the development of arctic air antisubmarine warfare (ASW) tactics were addressed as well.

ICEX-1-89 also established a good ground for cross training, calling for increased coordination between pilots and tactical coordinators (TACCO). *Naval Aviation News* talked with several members of the VP-44 *Golden Pelicans* to get firsthand accounts of the arctic exercise.

"It was some of the most exciting flying because of the different environment," P-3 TACCO Lieutenant Bronson Armstrong stated. "My job was very different during the exercises in the arctic. Normally, I would tell the pilots where to place the buoys, but because of the almost total ice coverage, the flight station had to visually see if there was ice or a water opening ahead," he explained.

"The exercises took a lot of extra time because we had to look for open leads in the ice," commented Lieutenant Greg Brown, a P-3 pilot. "Time can be a factor when trying to make contact with a sub and you need to get another buoy out in the water," he said. "It was also time consuming because of the logistical setup. We started our engines on the opposite side of the field from the fuel pits, then had to taxi over, shut engines down, fuel and wait again for warm-up." The maintenance hangar was separated from the flight line by three miles of windswept tarmac, and the ground support gear had to be returned to the hangar each night.

A maintenance action which is simple under normal conditions becomes difficult and possibly dangerous in the arctic. The forceful wind blows against ladders which then begin to slip on the icy ramps. A carelessly tended piece of ground equipment can be blown into an aircraft or, worse, a human.

One valuable practice to develop while working in the arctic is being aware of the "little things." Depending on the temperature, engine oil and hydraulic fluid freezes and jet fuel begins to gel, clogging fuel lines and pipes. Rubber seals, o-rings and aircraft tires freeze and become stiff. Pipe fittings leak and metal becomes brittle, breaking under very little strain. Even electronic equipment operates in a sluggish manner or is unusable.

The fix for all of this is either to hangar all of the aircraft, which isn't an option at current arctic bases, or devote extra preflight time to the careful and thorough warming of the aircraft and its systems. Even though the P-3 is a rugged, reliable aircraft — not requiring extensive pampering — when temperatures drop to 40 and 50 below, even the *Orion* needs extra care.

"There was a lot more time spent on maintenance," AMS2 John Deyoung said. "The extreme cold caused rubber fittings to shrink so we had a lot of leaks." And more time was spent on preflight. "We had to preheat the planes so instrument panels wouldn't crack. All the planes still left on time; we just had to start getting ready earlier," he added.

While maintenance people had their hands full, managers and coordinators dealt with logistics problems and maintaining a ready level for survival.

Seven crew members had just climbed back into a van, after moving a plane across the field, when a storm hit. Fortunately, the men did the smart thing and stayed in the van. After the storm they realized that they had been only

Even routine fuel checks become more difficult in the extreme cold.

A U.S. submarine surfaces through the ice in the arctic.



40 yards from a building stocked with survival gear.

"They were missing for four hours. When snow is swirling and winds are so strong they'll knock you over, and you can't see three feet in front of you, no one moves from their space," said TACCO Lieutenant Robert Ornelas. It was the only near mishap that occurred during the exercise. "It snapped everyone back into reality. Things can become routine. This just reinforced the fact that survival is top priority," Lt. Ornelas added. "The environment is harsh and unforgiving; mother nature is real unpredictable up there."

The list of do's and don'ts grew with one experience after another: Don't turn off your truck or tow tractor or it won't start again. Always employ the buddy system. Always notify your supervisor where you are going and when you're expected to return. Have a radio, if possible. Wear proper clothing and be keenly aware of the wind chill factor. Wear gloves; don't touch super cold metal aircraft parts or you will become frozen to your aircraft. If you do become frozen, don't try to pull away, you'll remove your flesh. The do's and don'ts continue, adding to the list of lessons learned and a whole new way of operating in a frigid environment.

The North Pole region became home to crews during their short time in the area and, for most, it was a growing experience. "Before I went there I had a perception of polar bears and a sign reading, 'Santa Claus lives here,'" AZ1(AW) Audrey Meads, said. "It wasn't like that at all. It was barren, white and extremely cold."

"It took a little getting used to 24



With high winds and ice covering the runways, landing in the arctic can be a difficult job for even the most experienced pilot.



Thermal buoys were tested during ICEX-1-89. Producing their own heat, they melt through the ice.

hours of sunlight but, on the other hand, if we had to work a little longer we had a constant source of light," AD2 Stan Lenharr added.

The base provided a gym, movie theatre, library and small club, all welcome distractions against the stark, desolate cold, but it was something more that kept moral at an all-time high. "You made some good friends up there, because everyone was dependent on one another for basic survival so people became much closer, much faster," AMS2 Deyoung, commented. "We worked together like one big team, and we worked well."

The Thule detachment was also unique operationally. It was the largest maritime patrol force that has ever conducted continuous operations in the arctic. It represented a balanced command structure with the essential elements of the active duty fleet, reserve forces in an augmentation role with their gaining commands, and our allies and their support personnel. The P-3 force provided essential supplies, supplemented by a Marine augment aircraft. "Having five or six squadrons working together as one unit was a first for most of the people in the different squadrons," Lieutenant Mike Silevinac, ComPatWing-5's maintenance material control officer, said. The effort proved to be a good working relationship for all.

During the planning stages for ICEX-1-89, briefings were held to teach crews how to operate in cold climates. "The Canadians were really a great source of information because they're used to operating in that type of climate," added Silevinac. Among

other things, the Canadians taught the American crews that aircraft batteries left in the cold overnight worked at only half capacity the next day. So even though it was time consuming, batteries were removed each night and stored in a hangar.

Along with the everyday struggle against the climate, maintenance crews packed propellers, replaced prop pump housings and numerous hydraulic systems, and even changed an engine.

"We had to wait for a new engine from Brunswick. We also needed tools to work on it and several items that we didn't have with us," AD2 Lenharr said. "The biggest problem was when some equipment that we needed was bumped from the flight, but we made do with what we had on hand. We had the plane up in the air within six days," he added.

During the six weeks of arctic sorties, no aircraft mishaps occurred, no personnel were injured, and the operation proved to be one of the most successful of its scale. Regardless of the extreme weather conditions there was an 80-90 percent success rate for accuracy of buoy dropping. For crew members the challenge and experience was one that they won't soon forget. "I'd go again in a heartbeat. This is the kind of ASW that pumps adrenalin into the body. We've opened a whole new arena of operation," said Lt. Brown.

"There's a sense of accomplishment, another mountain to climb," LCdr. Cox summed up. "In the next 15 years we'll have established a reasonable set of guidelines for arctic operations, just from what we've learned during exercises like ICEX-1-89." ■

Aviation Machinist's Mate Adds New Twist to Murphy's Law

By JO1 Jim Richeson

"Nothing is as easy as it looks, everything takes longer than you expect, and if anything can go wrong, it will — at the worse possible moment."
— Murphy's Law

Nobody ever said that being an aviation machinist's mate (AD) would be easy. In fact, as AD1 (Air Warfare) Jamie G. Murphy learned, the job can be very frustrating at times.

But with a little luck, a lot of perseverance and determination, not only did the 29-year-old native of Atchison, Kans., become a successful wrench turner, she was also chosen as the Navy's 1989 top shore sailor of the year.

Murphy became the third sailor from the aviation community, chosen consecutively by the Chief of Naval Operations, to be selected as the sea service's best enlisted member on shore duty.

Petty Officer Murphy, assigned as assistant chief to the dispatch section of Headquarters Allied Forces, Southern Europe's international motor pool, in Naples, Italy, won the Navy-wide competition against 365,000 of the finest sailors from every naval command worldwide. Not bad for a young Navy brat who enlisted through the Delayed Entry Program without informing her parents. The youngest of four children, Murphy decided to follow in her father's footsteps in 1977 when she enlisted while a student at Greenville Senior High School, Greenville, Ohio.

Murphy became a lithographer's mate and after her first tour decided to try the outside world in 1982. But, after a brief respite in the civilian world, she realized how committed she was to the Navy. In September of that year, Murphy rejoined the Navy as an aviation machinist's mate, barely missing the cutoff date by one day before she would have lost time in grade.

"Being a female in this rating was one strike against me and coming in as a second class petty officer was another," she said. Murphy emphasized that, while switching her rate as a second class petty officer, she lacked



ADC (AW) Jamie G. Murphy

"Take advantage of every opportunity that comes your way to learn everything you can."

hands-on knowledge in some of the basics of aviation maintenance such as corrosion control, handling aircraft in a line division, and other areas. "As a second class petty officer, people expected me to know these things," she added.

Working in the AD rating was discouraging at times. While women were relatively new in the rating then, the young sailor became frustrated when her male counterparts would not assign her maintenance tasks because they simply did not know what to do with her. With visions of being relegated to

a clerical job, Murphy grabbed hold of her tool box, kept an eye on her goals and proved to her male coworkers that she could handle the task like anyone else in her shop.

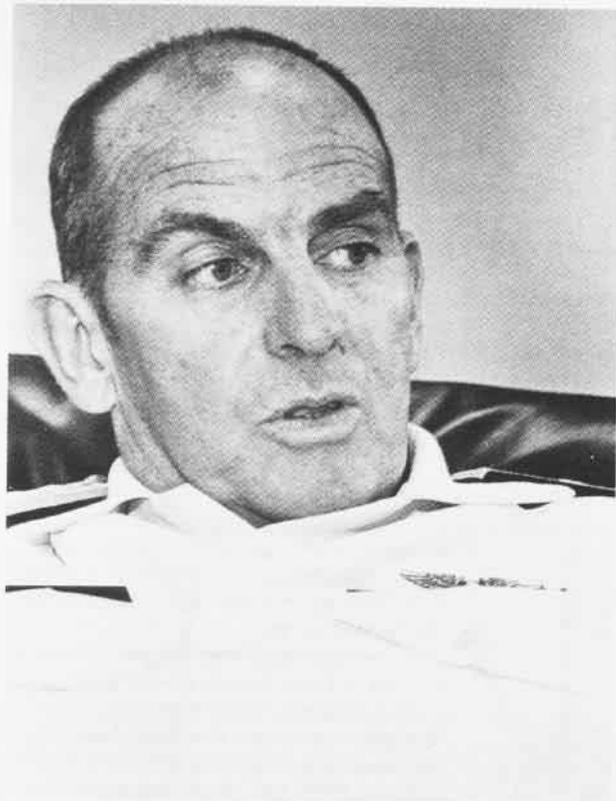
"I was learning from airmen. I didn't care who I had to learn from as long as I could learn my job," Murphy said. "Usually when you run into a conflict with men who have never worked with women, once you show that you can do it and that you do try, the men see that you're just as capable of doing the job as anyone else."

Standing 5'6" tall and weighing in at a svelte 145 pounds, Murphy is keenly aware of her physical limitations in performing some of the heavier maintenance jobs. "There were some things I couldn't lift and I couldn't do some of the torques required on some jobs but, at the same time, a man with a small build is unable to do the same," she pointed out. "But as long as there's teamwork and everybody pitches in to get the job done, I don't think it matters."

Now a seasoned wrench turner, Murphy's message comes from experience when she says, "Take advantage of every opportunity that comes your way to learn everything you can. It doesn't really matter who you have to learn it from as long as you can do your job the best way — especially in aviation where we have to pay so much attention to detail. Sometimes you have to swallow your pride. If you must learn from someone who's more junior than you or maybe someone that you don't like so much, then you go with it, because it's very important that you know how to do your job well."

AD1 Murphy's achievement can be attributed to her own version of the old axiom: "Nothing is ever easy. It takes a lot of hard work and perseverance to achieve success." With this mindset, what could go wrong? ■

JO1 Jim Richeson



JO1 Jim Richeson

Vice Admiral Richard M. Dunleavy ACNO (Air Warfare)

Vice Admiral Richard M. Dunleavy became Assistant Chief of Naval Operations (Air Warfare) on May 25, 1989, when he relieved Vice Admiral Robert F. Dunn who retired at a ceremony aboard *Saratoga* (CV-60).

VAdm. Dunleavy commanded the Naval Air Force, U.S. Atlantic Fleet, prior to his present assignment. His naval career began upon graduation from Officer Candidate School. He then completed aviation training at NAS Sanford, Fla., where he was designated a Naval Flight Officer (NFO). He served with several heavy attack squadrons and deployed aboard *Enterprise* (CVAN-65) before joining the staff of Reconnaissance Attack Wing One. After attending the Naval War College, he was assigned to VA-85 during a combat cruise onboard *America* (CV-66). He was skipper of VAs 176 and 128 and later commanded *Ponchatoula* (AO-148) and *Coral Sea* (CV-43). Promoted to flag rank in July 1981, he became Commander, U.S. Naval Facility, Subic Bay, R.P., and, subsequently, Commander, Carrier Group Four/Commander Striking Force, Atlantic.

NANews: After two months at the helm, how do you rate the ability of Naval Aviation to fulfill its mission?

VAdm. Dunleavy: As far as the Navy doing its job at sea, we're in great shape . . . we're getting better all the time. . . the quality of people is up, the material condition at sea is up . . . we have a lot of our carriers at sea. Our job here is to maintain that readiness through the next years of austere budget funding; it's going to be a hard job. I look at that as a challenge more than a problem. The team that we have here in D.C. is highly competent.

How do we maintain that peak level in the current climate of declining budgets?

By educating the American people and their representatives in Congress on the importance of the Navy

and the role the Navy plays worldwide. The classic example is the latest hostage situation in Beirut, Lebanon. It was a combination of diplomacy and military capability that has gotten things stabilized again. The carriers repositioned very rapidly. *Coral Sea* arrived off Lebanon in short order; *America* sortied quickly from Singapore and moved rapidly to the North Arabian Sea close aboard Iran just in case she was needed. The thing is that the Navy was called upon to react and did so exceptionally well.

What changes should the men and women of Naval Aviation expect in the next few years?

Hopefully, we'll be able to fly more. My priorities are flying hours, then pay for the people, then the carrier battle groups. I'd like to see an increase in funding for the flying hour program, from 25 hours per crew per month, gradually increasing towards 30. That's the incentive for aviators to stay; if we fly them hard, they'll stay. If we don't fly people who joined the Navy to fly, they're going to get bored and leave. They're going to look for some place where they can fly.

The second item is pay. I've been a fleet sailor for a long time, and I'm hearing that the white hats and chiefs are really noticing the gap between military and civilian pay . . . about a 10-percent spread right now. So people have started to say, "Hey, why aren't we being recognized pay-wise for the kind of work we do?" So I think we, the military people, here in Washington have to really work hard to keep a full court press on Congress to start looking at pay as a challenge that we have to accept and address.

If the flight hours and pay don't come then there is no sense in even battling for another carrier battle group. If we don't have the people, either enlisted or officers, to man the ships and the aircraft we're responsible for then it won't come. Another carrier battle group is an objective we have to maintain. We're now at 14 carrier battle groups because of budget constraints, but if we're going to

maintain our presence over the long haul, we need 15 carrier battle groups. Secretary Cheney agrees with the Chief of Naval Operations (CNO) that with 14 carrier battle groups there are going to be gaps in our commitments. He has given us his word that we'll not be sailing ships early in order to replace the retiring *Coral Sea* battle group.

A proposal is before Congress to raise the minimum service requirement to nine years for jet pilots, and seven for all other pilots, as well as for Naval Flight Officers. How would this proposal impact aviation recruiting?

I think it's going to have a very negative effect on attracting good people to fly in the Navy. At the age of 22, when a person hears "Come fly with me," and then we say, "Oh, by the way, you're not going to get out of the Navy until you're about 33. It takes 18-24 months to train to be a pilot and when you add nine years on top of that, that means 11 years of commitment." When a flier gets out of the Navy at 33, a third of his life is gone People are going to look at it hard.

When former Soviet Chief of Staff Sergei Akhromeyev testified in July before Congress, he stated, "What bothers us more than anything else is your aircraft carrier groups. For us they constitute a large threat." What is your assessment of his testimony?

He may see us as a threat, and as a professional military man, he's right; we are. The carrier battle group has a lot of offensive power; if I saw it coming at me, I'd have a lot of trepidation, too. The carrier battle force is a formidable power, especially when you're talking about three or four carriers combined.

Is his statement an answer to the critics of the carrier battle group, that it is a force to be feared?

Sometimes the critics are a lot more narrow than he is. They look for very short-term, quick solutions mostly for budgetary purposes. The carrier battle group, throughout the entire spectrum of warfare, is a formidable instrument. And it's not just a carrier, it's the entire carrier battle group — the submarines, the surface combatants, the cruisers, the destroyers, the tail ships, T-AGOS, MPA, the overhead things that we use — combined with the supply train, that keeps it going for days on end. With nuclear power, it's even more flexible. The Navy is the flexible instrument of the government. The carrier battle group is an exceptionally effective instrument of diplomacy. With it we can do our job just by sailing by or being over the horizon and making our presence known or, if called upon, delivering the weapons of choice. That's our job, and we do it quite effectively. We just did it in Lebanon; we just showed up.

In recent years, a number of Marine Corps squadrons have been integrated into deploying carrier air wings. Do you see this continuing into the future?

Instead of seeing whole squadrons coming aboard, we'll probably have several flight crews join Navy squadrons and, conversely, we'll send some of our guys over to the Corps. This will give more integration so we can benefit from their training in close air support, which they're very good at, and they can learn long-range strikes and war at sea from us. I can see the Corps getting out of the full squadron deployment, although we'll probably see it every two or three years.

Can you share with us anything about the new A-12? Can any young attack aviators in today's squadrons expect to serve their department head or command tours flying the advanced tactical aircraft?

When I joined the Navy we were going from propellers to jets; it was pretty exciting going from 180-300 knots up to

450-500 knots. That was just in terms of speed. But now with the advent of the A-12, the Navy advanced tactical fighter, and everything else coming down the pike, it's going to be much more exciting to fly in the Navy. We're going to have the A-12 in the fleet in the 1994 to 1995 timeframe. The kids today — just as we had challenges when we were young — are going to have even more challenges, and it's very exciting. I'd love to be there. I have a son in flight school. I envy him. I envy anyone starting out right now.

In its almost eight decades of existence, Naval Aviation has risen to and maintained its prominence as the cutting edge of naval warfare. What is your assessment of our future?

It will continue to be at the very tip because it is the most flexible and the most visible form of naval power. If you look at it in the long run, carrier-based power is probably one of the cheapest investments that the taxpayer can make because now our carriers are lasting 45-50 years; if you amortize the cost of a carrier over 50 years, that's a great return on the dollar. The aircraft we are building now all last 10 or 12 years or more. The greatest investment is in our people. If you look at the investment that America makes in our career people and the return in terms of the number of hours they work, especially at sea, it's an amazing return on the investment. So, I see us maintaining our excellence; I see us getting better and better, and it's because of the technology that American industry has given us. It's our people, the education of our people, the spirit of our people; we'll always be the leader. And it's going to get better.

Do you feel that on the horizon there is a prospect of unmanned aircraft replacing the manned aircraft?

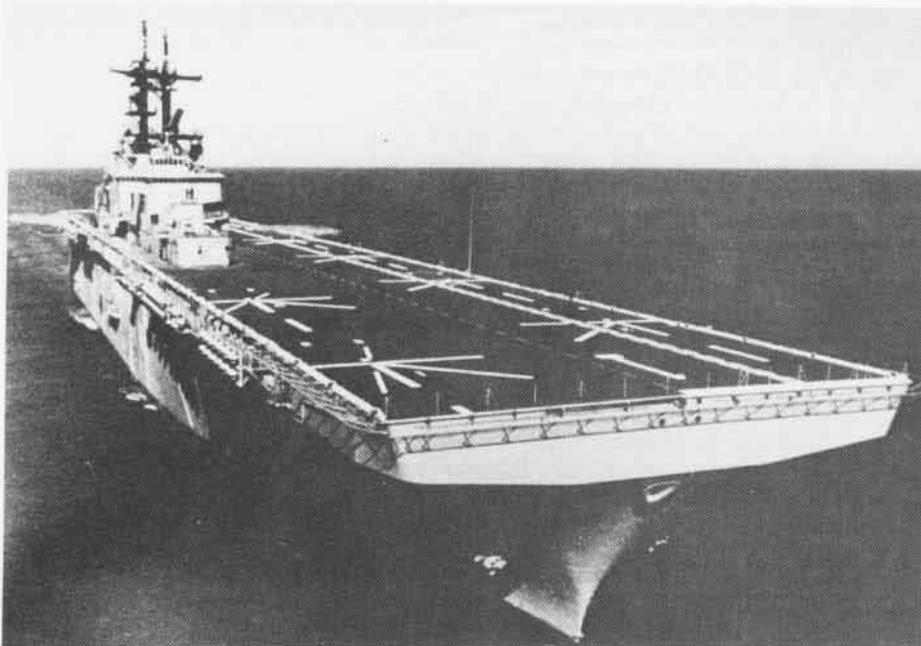
There appears to be some prospect of unmanned aircraft augmenting manned aircraft. Under some limited scenarios, unmanned aircraft offer advantages. When it comes to consistently and significantly putting weapons on target, man alone can make the judgment calls and make the corrections.

What are the most exciting prospects for the young aviators who make Naval Aviation a career?

The A-12, the advanced support platform, the P-7, the SH-60F — everything that's coming down the pike is pretty exciting. When kids come into the fleet today, they're going to be in a good position to fly the latest and greatest things that come out of American technology. Career-wise, it's becoming more and more satisfying; there are more and more avenues opening up. The requirement for joint tours will broaden people at a younger age. At the time I went to war college, as a lieutenant commander, if you didn't have a tail hook growing out of you, something was basically wrong with you. It wasn't until I went to war college that I found out there was something besides carrier aviation. I was very narrow until I was exposed to other services. I'm still a carrier aviator; for me, carrier aviation is the greatest thing in the world. The potential to excel is more and more open but it's not easy; it's probably more demanding. Here I am, an NFO as OP-05; that kind of thing didn't happen 20 years ago. The world is your oyster. Work hard, go for it and you'll get it.

Anything else you would like to add?

I'd like to get it across that we are a team, a really fantastic team. There are a lot of challenges out there; we just have to take them on one by one. If we keep the communication open between the fleet and the people fighting all the battles here in Washington, we'll come out with a better product and a better deal for our people. ■



Ingalls Shipbuilding

The amphibious assault force has a new sting. Thousands of spectators, including distinguished guests and former crew members, gathered to witness the tenth U.S. Navy ship to be dubbed *Wasp* come to life.

More than 17 years since CVS-18 — the last ship to bear the name — was decommissioned, the Navy's first multipurpose amphibious assault ship, USS *Wasp* (LHD-1), was commissioned during ceremonies at Naval Base, Norfolk, Va., on July 29.

After preliminary remarks by the ship's honored guests, which included Senators Charles S. Robb and John W. Warner, LHD-1's first skipper, Captain Leonard F. Picotte, read his orders and called for the crew to set the watch and man the 40,532-ton ship.

Captain F. J. Herrin, C.O., NAS Cecil Field, Fla., stood at the ship's bow. The last officer to stand watch as the old *Wasp*'s officer of the deck, Capt. Herrin

Navy's New Stinger USS Wasp (LHD-1)

By JO1 Jim Richeson



JO1 Jim Richeson

Top, USS *Wasp* returns as the Navy's first multipurpose amphibious assault ship (LHD-1). Above, a *Wasp* crewman bean counts in preparation for the ship's commissioning.

passed on the traditional long glass to the new *Wasp's* first quarterdeck watch.

As the ship's company manned the rail, a group of aircraft led by two AV-8B *Harrier IIs* — which will be one of *Wasp's* principal aircraft — flew overhead. LHD-1 came to life as the sounds of claxons, whistles, bells and sirens proclaimed its arrival to the fleet.

While the ceremony's principal speaker, General Alfred M. Gray, Commandant of the Marine Corps, addressed the crowd, one couldn't help but notice a handful of crewmen from previous *Wasps*. Bart Allen, 65, now residing in North Myrtle Beach, S.C., is



JO1 Jim Richeson



JO1 Jim Richeson

one of the few remaining survivors of CV-7 who lived to tell of that ship's tragic fate.

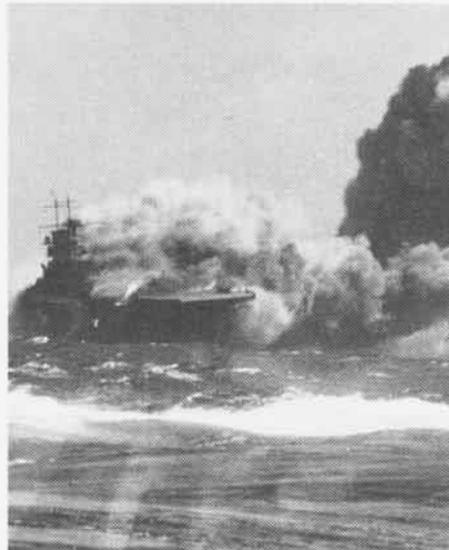
According to Allen, September 15, 1942, began like any other day for the aircraft carrier and its 2,000 crew members. As Task Force 61's flagship, the newly commissioned flattop, under the command of Captain Forrest Sherman, and other escort ships were steaming off Guadalcanal. *Wasp* escorted the 7th Marine Regiment to the island, and the ship's aircraft flew daily sorties to sever the Japanese supply lines to Guadalcanal which was heavily defended by the Imperial Army.

"It was a beautiful, sunny day," recalled former seaman Allen. The 18-year-old native of West Virginia joined *Wasp* in June 1941 and became part of the ship's crash crew.

The ship's aircraft continued their sorties over Guadalcanal and Allen did his daily chores on the flight deck. At approximately 1445, the day's calmness was shattered by one of *Wasp's* lookouts who cried, "Three torpedoes . . . three points forward of the starboard beam!"

Before the ship could alter its course, three torpedoes, launched from a Japanese submarine, struck the aircraft carrier's magazines and gasoline stowage areas forward.

The shock of the impact ruptured gasoline lines and started fires. Flames shot 150 feet into the air. Planes on



Left above, CVS-18's last OOD, Capt. F. J. Herrin, passes the traditional long glass to *Wasp's* first quarterdeck watch. Left, Bart Allen (center) lived to tell of CV-7's demise. Above, three Japanese torpedoes ended the eighth *Wasp's* service.

the flight and hangar decks were lifted and dropped with such force that their landing gears were broken.

Internal explosions continued and a particularly violent blast at 1505 tore a gun mount loose and flung it from its foundation. This explosion killed almost everyone on the port wing of the bridge. Within a half hour, the fires and explosions forward had spread to such an extent that the ship was abandoned. The commanding officer left the foundering *Wasp* at 1600.

Seaman Allen narrowly escaped injuries and found himself in the Pacific, clinging desperately to a wooden life raft. Before the day ended, close to 200 sailors perished at sea while the 14,700-ton carrier continued to burn.

All survivors were taken to Espiritu Santo, New Hebrides, where 83 hospital cases were sent ashore. *Wasp's* surviving crew members were rescued by escort ships who were fortunate enough to escape the Japanese attack. "We were picked up by USS *Duncan* in about two hours but it seemed like an eternity to me," Allen said. "I wondered whether I was going to see the United States again," he added.

In all, 26 officers and 167 of *Wasp's* crewmen were killed or missing; four officers and 81 men were hospitalized. By night, smoke still billowed from the ship and the brilliant flames illuminated the dark sky. Fire from the burning *Wasp* was so bright that it threatened to reveal the positions of other American ships in the area. At 2100 hours, the destroyer USS *Landsdowne* (DD-486) was ordered by the task group commander to fire three more torpedoes, which delivered the crucial blow that sent the ill-fated *Wasp* to her final resting place at the bottom of the ocean.

The eighth warship to bear the name *Wasp*, CV-7 earned three battle stars before she was put out of commission by the Japanese.

Less than a year later, the Navy launched another aircraft carrier, CV-18, which maintained *Wasp's* proud tradition throughout her 28 years of naval service. She too suffered casualties when 102 crewmen were killed by a bomb strike during the "Great Marianas Turkey Shoot." Later converted into an antisubmarine aircraft carrier, CVS-18 was the last ship to see action as USS *Wasp* before being decommissioned on July 1, 1972.

Like its predecessors, LHD-1's crew is dedicated to carrying on its namesakes' honor, tradition and excellence. History is rewritten as a grand old name returns with a new mission. ■



The Del Monte Pre-Flight School, on the grounds of the old Del Monte Hotel and the current site of the Naval Postgraduate School (NPS), operated from February 1943 to January 1944. It was one of five such schools at the time which provided a program of intense physical training for prospective Naval Aviators prior to their enrollment in flight training. Several organized sports teams were included in the training at the pre-flight schools and, in 1943, the Del Monte "Navyators" were the eighth-ranked football team in America in a combined poll of collegiate and service teams. This story of that team was prepared in conjunction with the observance of NPS's 80th anniversary in 1989.

Above, the regulars for the 1943 Del Monte Pre-Flight School Navyators. Right, the main dining room of the old Del Monte Hotel was jammed with a portion of the 1,500 cadets stationed at the school at one time. The cadets lived eight to a room during their pre-flight program.



Del Monte Navyators Reach Gridiron Top Ten

By Capt. Mark Stillwell, USNR

By the fall of 1943, WW II had dragged on for nearly four years for most of the European combatants, while the United States had been involved in the conflict for almost two years.

In Europe, Allied forces had taken Sicily and were moving up the Italian mainland. The British home fleet had sunk the German battleship *Scharnhorst* and discussions had begun regarding an Allied invasion of France.

At home, while blackout restrictions, gasoline rationing and war bonds got lots of attention, people had time to

enjoy favorites like Rita Hayworth, Errol Flynn, Ann Sheridan, Gary Cooper and, as always, Bob Hope. A 17-year-old starlet named Angela Lansbury signed her first film contract for \$500 a week. In baseball, most valuable players Stan Musial of the St. Louis Cardinals and Spud Chandler of the New York Yankees led their respective clubs to runaway victories in the major league pennant races, with the "Yanks" defeating the "Redbirds" in the World Series.

In California, a group of prospective Naval Aviators, stationed in a 19th-century luxury hotel on the picturesque Monterey Peninsula, played on what became 1943's eighth-ranked football team in America.

The American war machine was in high gear, turning out planes, tanks and ships at a steady rate, while the training of Army, Navy and Marine Corps personnel to take that equipment into battle was keeping pace.

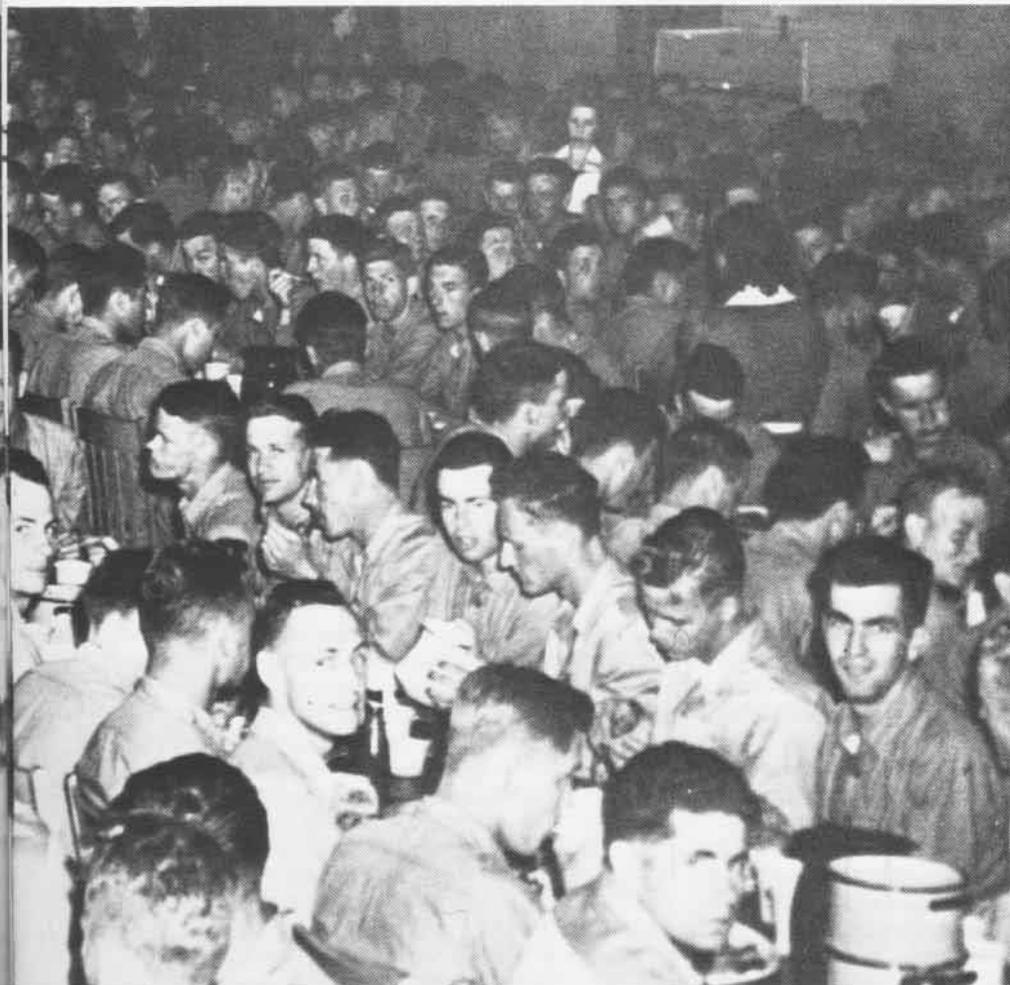
Finding itself involved in a massive air war in the Pacific, the Navy had a continuing demand for pilots and was producing new ones steadily. To speed that production, the Navy established five pre-flight schools geared to preparing prospective Naval Aviators for the tremendous rigors of their profession. Located at Athens, Ga.; Chapel Hill, N.C.; Iowa City, Iowa; and Moraga and Monterey, Calif., the 12-week programs were physically demanding, with heavy emphasis on conditioning and athletic-related activities.

The head of the Navy's physical training division for the pre-flight program in 1943 was Commander Tom Hamilton, and it was through his efforts that the athletic programs were established. A 1927 graduate of the Naval Academy who completed flight school at Pensacola, Fla., in 1929, Hamilton coached Navy football squads in San Diego and San Pedro, Calif., while attached to the light cruiser *Milwaukee* between 1931 and 1933. The next year, at age 27, he began a three-year stint as head football coach at the Naval Academy, also serving as an instructor in aviation there.

Cdr. Hamilton's work drew national attention and resulted in his being named Man of the Year for 1942 by the Football Writers Association of America. In 1970 he received the National Football Foundation Hall of Fame Gold Medal Award and in 1976 was awarded the National Collegiate Athletic Association's (NCAA) most prestigious honor, the Teddy Roosevelt Award.

Hamilton received other accolades for his work, and the 1943 NCAA Football Guide notes, "... the real answers to the value of his work are now being recorded on the battlefronts of the world."

Hamilton himself wrote in the 1942 NCAA guide: "It is the aggressiveness of the football field applied by our whole nation which will turn the tides



of battle to success for our forces. The early part of this game has been spent desperately on our own goal line. Now it is our turn to have the ball. It is our determination that in this case the score will be overwhelmingly in our favor at the end, and there will be no more enemy when we finish."

Following his work with the pre-flight programs, Hamilton commanded the carriers *Enterprise* and *Savo Island*. Retiring after the war as a rear admiral, he spent two years as head football coach at the Naval Academy, 10 years as director of athletics at the Univer-

sity of Pittsburgh and 12 years as commissioner of what is now the Pacific Ten Conference.

Rear Admiral Hamilton recalls how he got the pre-flight athletic efforts started. "We made a presentation of our program at the combined meeting of the NCAA football and track coaches associations. Coaches and athletic directors submitted applications and the ones we selected were given direct commissions in the U.S. Naval Reserve," he says.

The list of pre-flight school coaches read like a "who's who" of college football and included Bernie Bierman of Minnesota, Bud Wilkinson of Oklahoma, Bear Bryant of Texas A & M and Alabama, Don Faurot of Missouri, Rex Enright of Notre Dame and South Carolina, Jim Tatum of North Carolina and Maryland, and Spike Nelson of Yale and Mississippi.

Hamilton and his recruiters then went in search of top-notch collegiate and professional athletes to serve as instructors. Athletic directors were appointed to administer a program including football, basketball, baseball, swimming, boxing, soccer, wrestling, rugby, and track and field — to add to the military instruction in which everyone participated. As the organized sports evolved, the schools fielded squads competitive with the top collegiate teams of the era. Indeed, the wartime draw-down of athletes from the college ranks was so great that unless a school had a training program for officer candidates, it had little chance of beating a school with such a program. Shortages of varsity athletes forced many colleges to curtail part or all of their athletic programs in 1943 and 1944, while the 212 schools with V-12 (reserve training) programs thrived in athletics.

While the number of schools competing in major sports such as football was reduced, there was a rapid increase in the number of service teams, and it almost became a necessity for the military and collegiate teams to compete against each other. The sheer weight of the quality and numbers of skilled athletes in the service school ranks was such that they rapidly became dominant in the competition.

"The NCAA and the various athletic conferences were very cooperative in opening up their schedules to allow our teams to compete with them," recalls RAdm. Hamilton. "The schools had excellent teams. The coaches were characters of the first order. They did a lot of things that were unique and they came in and did it in a hurry.

"It was a great thrill for young kids just starting college to be playing with and for such experienced and well-

known players and coaches. The youngsters profited from it and made very rapid development," he says.

In Monterey, the pre-flight school opened in the facilities and grounds of the old Del Monte Hotel, acquired for use by the Navy in December 1942. Originally hailed as "the finest luxury resort in the world," the Del Monte had been visited by foreign heads of state and a number of American presidents since its opening in 1880. Acquired from Samuel F. B. Morse, grand-nephew of the inventor of the telegraph, the Del Monte had become a victim of a dwindling luxury resort business. The Navy needed a facility with weather conducive to outdoor activity on a year-round basis, and the scenic Monterey Peninsula was made to order.

The first 250 pre-flight cadets came aboard at Del Monte in February 1943 and another 250 arrived at two-week intervals thereafter. At its peak, the school had 500 officers and 1,500 students involved in training and, in the 11 months it was in operation, the Del Monte school graduated 4,750 cadets.

Like the other pre-flight activities, the Del Monte school quickly established itself athletically. The baseball Navyators won 21 of 28 games in the spring and summer of 1943 with a team featuring a number of former college baseball standouts, including Art Mahan, the regular third baseman of the 1940 Philadelphia Phillies, and J. T. Hill, an outfielder with three American League teams in the late 1930s. Hill would later go on to a successful 20-year career as football and track coach and director of athletics at the University of Southern California. Also making a name for himself at Del Monte was Cornelius "Dutch" Warmerdam, the holder of both the indoor and outdoor world records in the pole vault.

Lieutenant Mitchell Gary, head football coach from 1929 to 1941 at Western Michigan University, served as Del Monte athletic director, and Lieutenant Bill Kern came aboard in August 1943 as football coach. Kern, an All-American at the University of Pittsburgh and a veteran of the 1928 Rose Bowl, had been the head coach at Carnegie Tech and the University of West Virginia.

Wartime travel restrictions limited a military trainee to no more than 48 hours away from his duty station for athletic competition. Further, Navy Secretary Frank Knox stipulated that Navy teams had to compete in the NCAA district in which they were located.

For West Coast football in 1943, it was a good match. Pacific Coast Con-



**Tom Hamilton, halfback,
Navy football, 1924-26**

ference northern schools Washington, Washington State, Oregon State, Oregon and Idaho all faced abbreviated seasons. Stanford had called off the sport, leaving only California, Southern California and UCLA in the south. Other schools still fielding teams were College of the Pacific, University of San Francisco and St. Mary's College. With pre-flight squads at Del Monte and St. Mary's, plus the other West Coast military clubs, there figured to be enough teams available for an interesting season.

The Del Monte officer corps comprised some notable gridiron names from around the country, including standouts from both collegiate and professional ranks. On the team were half a dozen former All-American gridirers, namely, Paul Christman of Missouri, Len Eshmont of Fordham, Parker Hall of Mississippi and Jim McDonald of Ohio State in the backfield, plus Bowden Wyatt and Ed Cifers of Tennessee at the ends.

Tackle Ray Bray of Western Michigan had been with the Chicago Bears since 1939 and went on to gain two-time All-Pro honors after the war in a professional career which lasted until 1952, while end Fred Meyer of Stanford had been the leading receiver for the Philadelphia Eagles in 1942 and returned to the Eagles in 1945.

Bray was one of the instructors given a direct commission as an ensign, and he reported to Monterey in mid-1943. He later had similar stints at Glenview, Ill., Chapel Hill, N.C., and Jacksonville, Fla., but his fondest memories are of his days with Del Monte Pre-Flight.

“... it was a gorgeous setting . . . the best duty I ever had.”

The football team practiced on the old polo field near the hotel building and had locker rooms and a grandstand around the field. Mornings were occupied with physical training classes and platoon drills, while practice for various sports took place in the afternoons.

The Del Monte schedule called for the Navyators to open their season on September 26 against the Alameda Coast Guard Station. Coach Kern's plan was to play his cadet group as much as possible, while still getting some mileage from the highly touted officer corps he had on hand.

Del Monte quickly made its presence felt as the Navyators blasted the Ala-

meda Sealions 34-7 before a crowd of 10,000 in San Francisco's Kezar Stadium. Kern unveiled his All-American "dream backfield" with McDonald scoring a touchdown while Christman threw a TD pass to Eshmont. Cadets played much of the time in the romp but public attention quickly focused on the All-Americans in the Navyator lineup.

Del Monte returned to Kezar Stadium a week later to take on St. Mary's College and, after trailing 7-6 at halftime, the Navyators dispatched their foe, 33-7. Halfback Jimmy Riddle had a 66-yard touchdown run for Del Monte, only to find himself transferred to flight training prior to the Navyators' next game.

With two quick victories under their belts and ranked 14th in the Associated Press (AP) national collegiate poll, the Navyators prepared for what was to be their only home game of the season. The Pleasanton Naval Personnel Distribution Center provided the opposition and the game was scheduled for the Monterey High School field. Ticket demand for the contest was so great that two days before the game the site was changed to the Del Monte polo field. Captain George Steele, C.O. of the Pre-Flight School, invited the mayors and city managers of Monterey Peninsula communities, as well as area military installation commanders, to attend as his guests.

A crowd of 5,000 jammed into the tiny polo field as Christman got the Navyators off to a quick start with a 70-yard touchdown pass to end Murel Brown. Eshmont scored on a 10-yard run and caught a 25-yard scoring pass from Christman as the Navyators rolled over Pleasanton, 34-6.

By now the team had achieved top 10 ranking in the country and was a heavy favorite a week later against College of the Pacific (COP) in Stockton. One of the smaller schools on the coast, COP was guided by the legendary Amos Alonzo Stagg, then in his 11th year at COP, after 41 seasons at the University of Chicago in a career which made him the winningest college coach of all time. The 81-year-old Stagg was named college football's Coach of the Year by the *New York World-Telegram*.

COP was also undefeated and the Tigers hiked their stock with a 16-7 upset of Del Monte. Coach Stagg's team journeyed to Los Angeles the following week to take on the unbeaten USC Trojans in front of 75,000 people in Memorial Coliseum. USC won 6-0 as COP had a touchdown nullified on a disputed clipping penalty call.

Del Monte got back in the win col-

umn a week later with a 34-0 shutout over San Francisco in Kezar Stadium and then headed south for a 26-7 victory over 1943 Rose Bowl winner UCLA in Memorial Coliseum.

At 6-1, the Navyators returned to Kezar and a crowd of 49,000 turned out to see Del Monte roll over St. Mary's Pre-Flight, 37-14. A week later, Del Monte wrapped up its season in Berkeley's Memorial Stadium with a 47-8 victory over the California Golden Bears.

"We really had a good team and a great season," Bray recalls. "The guys stuck together very well. In the only game we lost, the temperature was about 110 degrees up at Stockton and everybody was pretty well withered down by the end of the game. We beat everyone else pretty handily. We had great camaraderie with the group."

The Navyators finished with a 7-1 record but the lone loss kept them from a chance for a possible additional game. March Field Fourth Air Force and Naval Training Station (NTS), San Diego met in the only West Coast post-season service matchup. USC, which had lost only to NTS San Diego, wound up with a 29-0 victory over Washington in the only Rose Bowl game ever played between two West Coast college teams.

The final Associated Press poll had Del Monte ranked eighth in the country in a listing dotted with top service teams. Notre Dame won the national title but the Irish suffered their lone loss to the sixth-ranked NTS Great Lakes. Iowa Pre-Flight finished second in the poll and March Field was tenth. AP also picked a service All-American team, with end Bowden Wyatt, tackle Ray Bray and back Len Eshmont gaining selection to the first unit.

The Navy was able to meet its needs in the production of pilots so rapidly that the Del Monte Pre-Flight School closed in January 1944, just 11 months after opening. The school was disestablished but the hotel and surrounding grounds were used for engineering and general line schools.

Congress approved the purchase of the Del Monte property and, in 1948, President Harry Truman authorized the move of the Naval Postgraduate School from its home at the Naval Academy in Annapolis, Md., to the West Coast. After a move involving 500 families and three-million pounds of equipment, the school opened at Monterey in 1951. ■

Capt. Mark Stillwell, a member of the Naval Reserve since 1963, has commanded four reserve units. In civilian life, he is Sports Information Director at Southwest Missouri State University, Springfield, Mo.

BT

By Hal Andrews

Arose by any other name . . . One of the least known of the first monoplanes that equipped U.S. Navy carrier squadrons starting in the late 1930s was Northrop's BT-1 dive-bomber. In 1938, the Northrop Company of the early/mid-30s became Douglas' El Segundo Division, El Segundo, Calif., and the Navy recognized the BT-1's dual function as a scout/bomber with the dual role VSB designation. The planned BT-2 then became the SBD-1, initiating what was

XBT-2



to become the famed WW II Douglas *Dauntless* series of scout/dive-bombers. While the BT-1s remained in training and utility squadron duty into the mid-WW II period, they didn't rate a name when these were assigned in the fall of 1941 — unlike their early squadron monoplane contemporaries, the Vought SB2U *Vindicator* and Douglas TBD *Devastator*.

The BT owed its existence to a number of factors in the depression year of 1934 when, contrary to the economy, the application of advanced aviation technology was making great strides. While military funds were at a minimum, the government's various recovery funds allowed the Navy's fifth and sixth carriers to be laid down. The Vinson-Trammell Act (Rep. Carl Vinson for whom CVN-70 is named) allowed for a significantly increased number of naval aircraft, and recovery funding would pay for many of these. Among others, Northrop's design concepts for advanced all-metal, low-wing monoplane aircraft, combined with other aeronautical advances — particularly in power plant features including air-cooled engines themselves, propellers and cowlings — were demonstrating major capability improvements in all types of aircraft.

Against this background, the Navy's



BT-1

Bureau of Aeronautics (BuAer) initiated competitive prototype selections for new carrier attack aircraft: torpedo-bombers (VTB), scout-bombers (VSB) and dive-bombers (VB). The latter two differed in that the scout-bombers had the scout mission with a 500-pound bomb for dive-bombing, while the VB types would be 1,000-pound dive-bombers. The Navy type specifications allowed either monoplane or biplane designs, with stretched performance requirements to take advantage of all that the latest technology offered. In the VB category, Northrop's proposed design was selected, along with one other — Great Lakes' development of their BG-1 biplane (*NA News*, March-April 1934) — which incorporated all the other new advances in a traditional biplane design. Contracts for both the XBT-1 and the XB2G-1 were signed in late 1934. Similarly, both monoplane and biplane prototypes were ordered in the other categories.

The XBT-1 first flew in August 1935. An all-metal, stressed-skin structure, low-wing monoplane, it had a 700-hp Pratt and Whitney R-1535 Twin Wasp, Jr., radial air-cooled engine driving a two-position, controllable-pitch propeller. The Northrop multi-spar wing design mitigated against interruptions in structural continuity, so the wings were nonfolding and the landing gear semiretracting into large fairings under the wing center section. Large split flaps along the full wing trailing edge between the ailerons provided the increased lift needed for carrier operations. Outboard of the center section, upper surface split flap sections could be opened simultaneously with the landing flaps as dive flaps to limit the terminal

velocity reached in near vertical dive-bombing maneuvers. The 1,000-pound (or 500-pound) bomb was carried under the wing centerline on a trapeze that swung down to release the bomb clear of the prop in a dive.

One characteristic of the XBT-1 and its successors (and dive/speed brakes on many other tactical aircraft since) were the perforated flaps. In the initial dive tests with the original typical solid flaps, the tail surfaces experienced extreme buffeting. After many attempts at a fix, a National Advisory Committee for Aeronautics (NACA, predecessor of today's NASA) engineer suggested perforated flaps. These cured the problem without other adverse effects.

In December, the XBT-1 was ferried to NAS Anacostia, D.C., for Navy trials, both as a 1,000-pound dive-bomber for contract purposes, and as a scout-bomber in anticipation of more general fleet use of any production model. Problems with the canopy plexiglass cracking, and with the landing gear retraction system, were among the major ones addressed. Trials continued until July 1936, when an uprated 750-hp R-1535 engine, similar to that of planned production BT-1s, was installed along with other recommended improvements. The XBT-1 returned to Anacostia in November after 54 production BT-1s were ordered in September. From February to May 1937, the XBT-1 underwent accelerated service trials, including carrier operations, based at NAS Norfolk, Va. For the first time in reporting on the XBT-1, the accelerated service trials noted concern over falling off on one wing at or near the stall, though recognizing that the planned larger vertical tail on the

production BT-1s should help — but needed to be checked before their service use.

With the noted vertical tail change, landing gear modifications and as a VSB type, the first BT-1 was completed in September 1937 and trials started at Anacostia in November. Labor difficulties, including a strike, at Northrop delayed production; deliveries to the fleet began in March 1938. The TBD-1 and SB2U-1 preceded the BT-1 into the fleet as the first carrier monoplane types. The BT-1s, all delivered by August, went to VB-5 and VB-6, to operate from the two new carriers that had been laid down in 1934. The fall off at and near stall, not unusual in many early low-wing monoplanes — accompanied by an aileron "kick" — continued to be a problem in fleet operations. However, leading edge stall strips and other fixes which were successful on other aircraft did not cure the problem. Finally in mid-1939, outboard wing slots just behind the leading edge, ahead of the ailerons, were found to give significant improvement and were incorporated as a service change.

While an export model of the BT-1, the DB-19, was offered in 1938, only a prototype was completed. Two of the production BT-1s were diverted for experimental use — both in connection with landing gear. The first was diverted to incorporate a fully retractable landing gear, considered necessary in any potential further production. This major modification was ordered in late 1936, with other changes, including catapult provisions and a constant speed prop, which were incorporated in what first flew in April, 1938 as the XBT-2. Following a gear-up landing in early testing, major changes were made to incorporate a Wright 800-hp R-1820 Cyclone engine before the XBT-2 went to Anacostia for trials in August. After completion of trials in November, the XBT-2 went to NACA Langley Field, Va., for wind

tunnel tests in its full-scale tunnel before returning to what was now Douglas El Segundo for correction of major defects — including a higher cockpit overturn structure and correction of lateral control problems — both at stall and high speed.

Meanwhile another BT-1 had been fitted with a fixed tricycle landing gear to explore the suitability of this type of gear in carrier operations. Unfortunately, a mid-field collision cut short its career before full trials were accomplished — though initial results were promising.

BuAer encouraged Douglas to not just look at the specific aileron problems on the XBT-2 but, recognizing



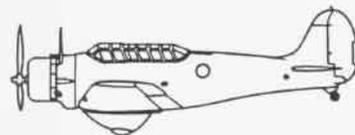
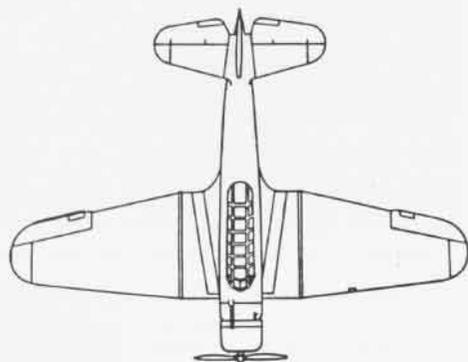
the value for a production model, to improve overall stability and control characteristics. This resulted in a classic flight development program involving both vertical and horizontal tail surfaces, the ailerons and the outboard wing panels. Navy pilots participated in evaluating characteristics at appropriate points, and the results as they evolved were incorporated in the production design, which had been ordered in April 1939. The final details were worked out on the first two production SBD-1s when they flew in May 1940; the XBT-2 had essentially reached this overall configuration, including the higher canopy and overturn structure along the way. This flight development program was fully documented, including the details of each configuration change (22 for the vertical tail, for example) and the report was circulated by BuAer and NACA to show what could be accomplished, and how to do it.

The BT-1s, meanwhile, served with VBs 5 and 6 until their replacement began in late 1940 and early 1941, going briefly to VB-3 in early 1941, and then to training duties at Miami, Fla., and utility service with VJ-3 before the last were retired from flying in 1943 for use in maintenance instruction. ■

BT



| | BT | XBT-2 |
|-----------------|--|---|
| Span | 41'6" | 41'6" |
| Length | 31'8" | 31'9" |
| Height | 13'4" | 12'10" |
| Engine | P&W R-1535-94 | Wright XR-1820-32 |
| | 825 hp 850 hp T.O. | 800 hp 1,000 hp T.O. |
| Max speed | | |
| Clean | 223 mph | 265 mph |
| 1,000-lb. bomb | 213 mph | 252 mph |
| Service ceiling | 25,700' | 30,600' |
| Range (scout) | 1,151 mi | 1,458 mi |
| Crew | Two | Two |
| Armament | | |
| | One .50 mg fixed One .30 mg flex Two 100-lb., one 500-lb., or one 1,000-lb. bomb | One .50 mg fixed One .30 mg flex Two 100-lb., one 500-lb., or one 1,000-lb., bomb |



Ready to Mobilize

Part 1 of 2



Lexington (CV-2) leads Ranger, Yorktown and Enterprise — CVs 4, 5 and 6, respectively — in formation during the late 1930s.

By Capt. Steven U. Ramsdell

On September 1, 1939, the German blitzkrieg thundered into Poland and announced the return of war to Europe after 20 years of uneasy peace. Following the momentous events of the preceding weeks and months, the renewal of fighting was not unexpected. But across the Atlantic, the United States was staunchly resolved to remain out of the entanglements of foreign politics and war. That resolve shaped and constrained American policy until the Japanese raid on Pearl Harbor abruptly rallied public support for direct participation in the war. Once committed, the United States played a decisive role in the Allied defeat of both Germany and Japan, and Naval Aviation was among the

most potent military instruments in that victory.

As the first installment in a series which will follow Naval Aviation throughout WW II, this article is focused on the state of the U.S. Navy's air arm at the moment the war began in Europe. From this beginning subsequent installments, appearing over the course of the war's 50th anniversary, will describe the development of Naval Aviation and the combat action in which it participated.

The German invasion of Poland has been selected as our starting point because it is traditionally recognized as the beginning of WW II, and from that moment forward the possibility of American involvement in another world

war was based on concrete experience rather than speculation. Shortly thereafter American neutrality began to erode, eventually involving the Navy, before Pearl Harbor, in combat operations in fact if not in name.

On September 8, President Roosevelt proclaimed the existence of a limited national emergency and thereby initiated the accelerated process of preparing for war. The Navy and Naval Aviation were, of course, at the center of that process. Our objective at the outset of this series is to pin down the point from which the subsequent preparation of Naval Aviation for war began.

By every objective measure, Naval Aviation was unprepared for war in the fall of 1939. Popular disenchantment with the results of WW I and the government's commitment to austere federal budgets throughout the 1920s and the early years of the Depression restricted the development and growth of Naval Aviation. In 1926 the Navy was authorized to increase its aviation force to 1,000 aircraft and in 1938 to 3,000. But the results were far short of the Navy's estimated requirements for war with Japan, and the force on hand was minuscule compared to what turned out to be required to win a two-ocean war. By the middle of 1939, the Navy's inventory included only 1,316 combat aircraft.

Nonetheless, the situation could have been much worse. Despite the public mood and political climate of the preceding two decades, and the pace of technical developments in aviation

since the end of WW I, a solid foundation for the mobilization of Naval Aviation had been established and the momentum toward improved readiness for war was irreversible. Aviation was firmly established within the Navy, and Naval Aviation had taken on many of the characteristics of its maturity during the war ahead.

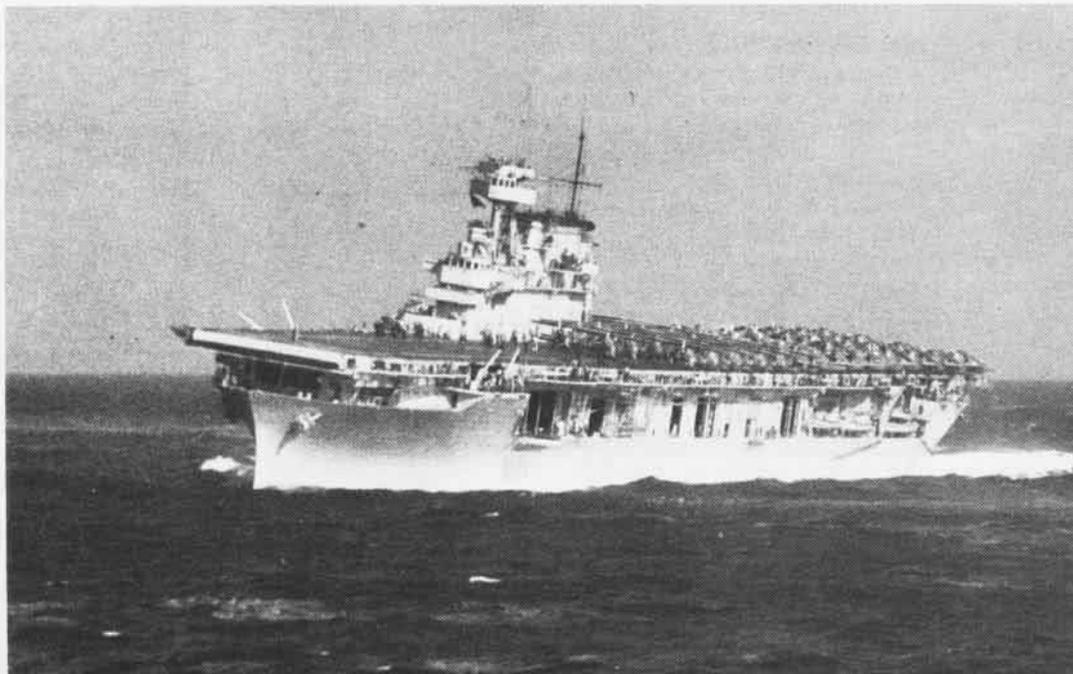
Few images of Naval Aviation during WW II are more striking than those of the aircraft carriers in action. They fought many of the war's fiercest and most decisive battles. Before it was over, the United States placed more than 100 of them in commission, including two dozen large fleet carriers. But in the fall of 1939 the Navy had a total of just five carriers. *Lexington* (CV-2) and *Saratoga* (CV-3) had been commissioned in 1927. They were laid down originally as battle cruisers but completed as carriers after the Washington Treaty of 1922 specified limits on naval armaments which would have sent both to the scrap heap otherwise. At 36,000 tons they were the largest carriers operated by the U.S. during the war.

Ranger (CV-4) was commissioned in 1934 as the first American ship designed and built from the keel up as an aircraft carrier. At 13,800 tons she represented the small carrier school of thought within Naval Aviation in the 1920s. The proponents of this view believed that the best way to keep an effective number of airplanes in the air was to have them flying from as many ships as possible. After *Lexington* and *Saratoga*, five ships of *Ranger*'s dis-

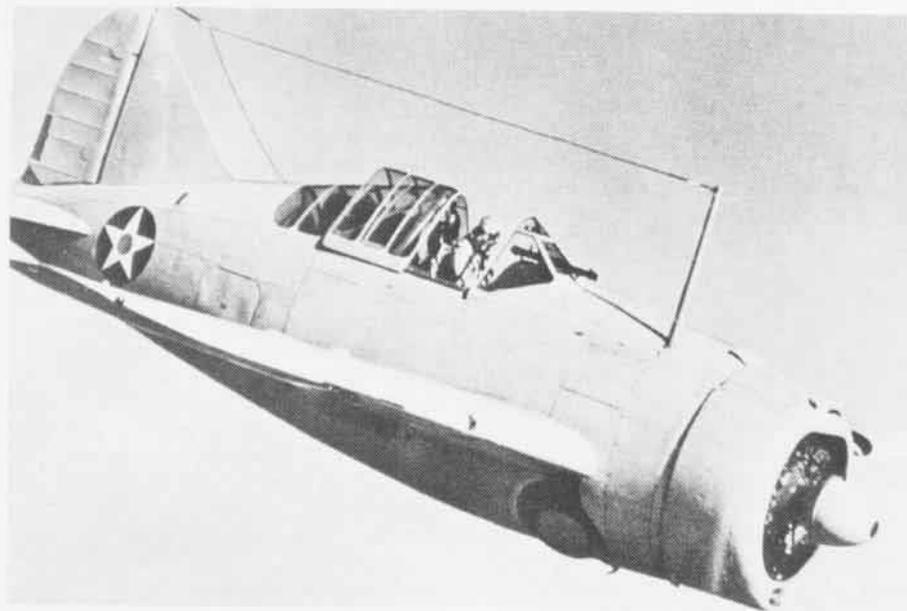
placement could be built within the Washington Treaty limits. Bigger ships would mean fewer ships, perhaps not enough for effective operations.

That perspective changed even before *Ranger* was commissioned. Experience with *Lexington* and *Saratoga* demonstrated that maximum power could be concentrated in the air by launching strikes quickly from flight decks loaded, beforehand, with as many aircraft as possible rather than by moving planes up from the hangar deck one at a time for launch, which appeared to have the advantage of leaving the flight deck uncluttered and flexible. Plus, the large ships had the stability to launch and land planes in weather conditions far worse than previously imagined possible, and they proved the operational importance of higher speeds than *Ranger* could make. Thus, priorities for carrier construction shifted to ship and flight deck size and speed. The last two CVs to enter service before 1939, *Yorktown* (CV-5) in 1937 and *Enterprise* (CV-6) in 1938, displaced 20,000 tons each, and they were fast, as the fleet wanted.

Three more carriers were authorized, all in different states of development. *Wasp* (CV-7) was launched in April 1939 and commissioned the following spring. Her relatively small displacement of 14,700 tons was a compromise determined by the tonnage remaining under the Washington Treaty at the time of her design rather than by the intention to duplicate *Ranger*. Shorter than *Ranger* but with a larger flight deck and a little more speed,



Enterprise is loaded with biplane fighters and bombers, as well as the Navy's first carrier-based monoplane, the TBD Devastator.



Brewster's F2A Buffalo was the Navy's first monoplane fighter.

the last of these biplanes was delivered to the Navy in May 1939, shortly before the German invasion of Poland, and they remained in service with Marine Corps fighter squadrons until just before Pearl Harbor. Delivery of the first monoplane fighter to a fleet squadron, the Brewster F2A *Buffalo*, was made to VF-3 in December. And the Grumman F4F *Wildcat*, the first carrier-based fighter capable of slugging it out with superior Japanese *Zeros* (as it did almost single-handedly before the last half of 1943), was not seen in the fleet until VF-4 received the first copy in December 1940.

By 1939 the distinction between the missions of the carrier's bombing and scouting squadrons was rapidly disap-

Wasp was really a scaled-down development of *Yorktown*.

After the expiration of the Washington Treaty and its limits, *Hornet* (CV-8) and *Essex* (CV-9) were authorized in the Naval Expansion Act of 1938. In order to expedite construction, *Hornet* was laid down in late September 1939 as a full-scale repeat of *Yorktown's* proven design. *Essex*, on the other hand, was to be a substantial improvement which incorporated the most important lessons learned by the Navy about aircraft carriers. Her 27,000-ton design became the standard to which all the American fleet carriers commissioned during the war were built. But this innovation came at the expense of time. Her keel was not laid down until April 1941; she was commissioned on the last day of 1942.

When the war opened in Europe, the disposition of the carrier force reflected the Navy's strategic focus on the Pacific. The most formidable carriers were stationed on the West Coast with the fleet's Battle Force. Only *Ranger* was on the East Coast as part of the much smaller and recently formed Atlantic Squadron.

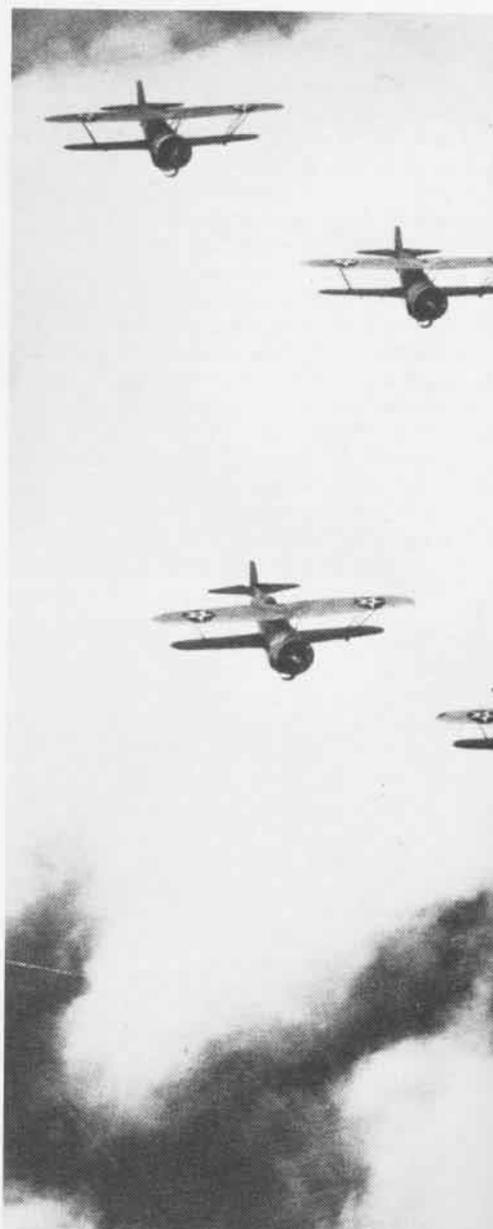
Therefore, at the moment the German offensive began in Europe, the U.S. Navy had on hand or on the way the carriers which met the Japanese offensive in the Pacific three years later. Of the seven carriers commissioned before Pearl Harbor (the five in commission in 1939 plus *Hornet* and *Wasp*), all except *Ranger* saw action in the Pacific before the Japanese were hammered to a stop on Guadalcanal in the fall of 1942. The strength of Naval Aviation proved to be adequate for this great test, but just barely. Four of the six carriers involved went to the bottom. However, *Essex* and her sister

ships were soon on the scene spearheading the Fast Carrier Task Force's drive to Japan.

The snapshot of carrier aircraft in September 1939 is significantly different from that of the ships themselves. In the case of aircraft, the critical importance of later additions to the fleet is most striking.

Aviators had known for a long time before 1939 that airplanes designed and built for one mission performed better than those built to perform several different missions. In the 1920s, carrier planes were developed for the missions of fighting (shooting down other aircraft), bombing, launching torpedoes and scouting. The air group on each carrier, identified by the ship's name (numbering air groups began in 1942), consisted of one 18-plane squadron for each of these types of aircraft. The squadrons were labeled respectively VF, VB, VT and VS and numbered for the ship to which they were assigned. For example, *Lexington*, the second carrier commissioned, was designated CV-2, so her air group consisted of VF-2, VB-2, VT-2 and VS-2. All of the carrier air groups had four similar squadrons, except those for *Ranger* and *Wasp* (whose group had just been established) which included a second VS squadron in place of the VT squadron.

The aircraft actually being flown in these squadrons in 1939 were in many cases a far cry from those which met the Japanese after Pearl Harbor. Carrier fighter squadrons were still mired in the biplane age, flying Grumman F2Fs and F3Fs. Names were not officially assigned to aircraft by the Navy until 1941, and neither the F2F nor the F3F had an unofficial popular name. First flown respectively in 1933 and 1935,



pearing, a fact reflected in the designation of the planes they flew: SB for scout-bombers. But in terms of the aircraft actually assigned to the squadrons, there was a substantial difference.

The bombing squadrons had crossed the threshold into the era of monoplanes. VBs 2, 3 and 4 were equipped with the first-generation scout-bomber monoplane, the Vought SB2U *Vindicator*. It had been in the fleet for almost two years and deliveries continued until the summer of 1941. *Vindicators* saw action after the war began but by then were being replaced as quickly as the production of newer types permitted.

Two bombing squadrons were al-

ready flying an aircraft which became one of the real combat champions of the war. The first Northrop BT-1s were accepted in April 1938, and VBs 5 and 6 were fully equipped with them in the next few months. By the time a refined model was ready, the XBT-2, Northrop had become a division of Douglas and the aircraft was redesignated the SBD *Dauntless*. This versatile workhorse quickly developed a reputation for ruggedness and dependability. As the principle carrier-based dive-bomber during the first half of the war, it provided the lion's share of the carriers' offensive punch in many of their most important battles. More than 5,300 of them were accepted for use by the Navy and Army before the line closed in August 1944.

The similarity in missions between the bombing and scouting squadrons did not extend to the vintage of their aircraft. The antiquated airplanes in the VS squadrons were the geriatric element of each air group. *Ranger's* two VS outfits were flying Vought SBU biplanes which had been in service almost four years and out of production over two. The scouting squadrons on the other four active carriers flew Curtiss SBC *Helldivers*, America's last combat biplanes. Even though they remained in production until the spring of 1941 and were still in limited fleet service at the time of Pearl Harbor, these *Helldivers* (a name used several times by Curtiss), like the SBUs, were in need of replacement by 1939.



Curtiss BF2C-1s of VB-5 in the mid-1930s. It was in biplanes such as these that the Navy perfected the dive-bombing tactics that proved so lethal in the war.

The torpedo squadrons were in the middle of the air groups' generational spectrum. They had all transitioned to Douglas TBD *Devastators* before 1939 and were still flying them two years later. The *Devastator* was a significant innovation when it became the first carrier-based monoplane to enter the fleet in 1937, but it was obsolete by the time the war began and was withdrawn from operational service after its disastrous performance at the Battle of Midway. Three squadrons of *Devastators* were wiped out by Japanese *Zeros* there. Unlike the fighter and scouting squadrons which had aircraft so out-of-date in 1939 that they were replaced before Pearl Harbor, or the bombing squadrons which had newer aircraft with more up-to-date performance, the torpedo squadrons suffered the fate of having planes that were too new to replace but too old to survive after the fighting began.

Scouting for the battleships and spotting hits for their big guns, considered absolutely essential for the success of the battle line by 1939, was performed from Curtiss SOC *Seagull* floatplanes. Observation squadrons, VOs, supplied a three-plane detachment to each ship. Similar services were provided to the cruisers of the Scouting Force by cruiser-scouting squadron (VCS) detachments, flying the same airplane. In operation, they were catapulted for takeoff and retrieved by winch after landing in the sea alongside the parent ship.

The position enjoyed by carriers and their squadrons within the culture of Naval Aviation was rivaled by the VP squadrons of patrol aviation, which had longer pedigrees. Pilots transferred between the communities frequently. As an illustration, Captain Marc Mitscher squeezed in command of Patrol Wing One between his command of the tender *Wright* and his arrival as the Deputy Chief of the Bureau of Aeronautics. His tour was just long enough to allow him to lead the wing through the important Fleet Problem XX of 1939. His later fame came as *Hornet's* first commanding officer and commander of the Fast Carrier Task Force's drive across the central Pacific.

Patrol aviation's importance was also apparent in the largest single contract awarded to date for Navy or Army aircraft — \$21 million in 1938 for Consolidated PBY *Catalinas*. First flown in 1935, *Catalinas* began to arrive in fleet squadrons in 1936 and were still coming off the production line when Japan surrendered. A few older P2Ys remained in fleet service until early 1941, and

newer and larger planes soon appeared which also rendered creditable service, most notably Martin PBM *Mariners*. But the PBYs formed the core of patrol aviation throughout the war. More of them were made than any other flying boat, almost 2,400, including 636 which were exported.

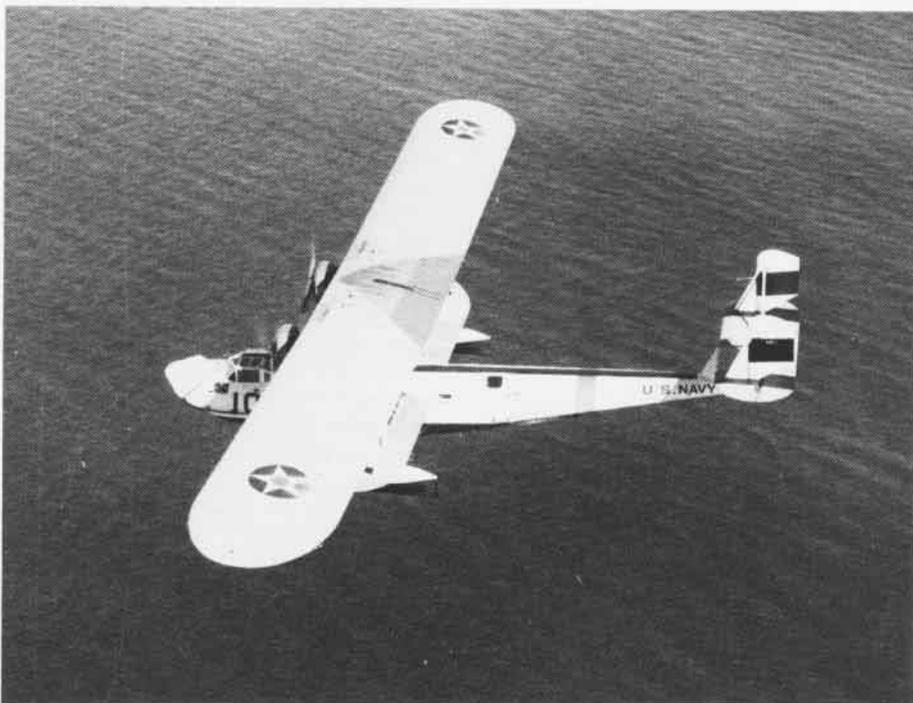
During the 1930s, fleet exercises consistently demonstrated the PBY's scouting effectiveness. With a search range far greater than that of any of the aircraft carried on ships, the PBYs could make a significant contribution to the fighting potential of the fleet itself. However, the exercises cast ever greater doubt on their potential to effectively bomb surface combatants without suffering unacceptable losses. (That capability was expressed by the B in PBY.) Unconvinced, the individual squadrons still stressed bombing practice in their training.

The 20 VP squadrons active in September 1939 were organized into five patrol wings. Their disposition, like that of the carriers, reflected the Navy's strategic orientation. Three wings were in the Pacific — homeported at San Diego, Calif.; Seattle, Wash.; and Pearl Harbor, Hawaii. Another was permanently assigned to the Canal Zone at Coco Solo. Only Patrol Wing Five at Norfolk, Va., was on the East Coast. From these bases squadrons regularly deployed to loca-

tions such as Guantanamo Bay, Cuba; Sitka, Alaska; and Midway Island in the central Pacific.

For greatest effectiveness, the PBYs needed mobile bases to quickly extend their protective umbrella, but the development of seaplane tenders had languished badly. The aging and inadequate tender fleet was composed of converted minesweepers, an ex-oiler, *Wright* — in commission since 1921 — and *Langley*, the Navy's first carrier now in her final incarnation. Consequently, a program to convert 14 flush-deck destroyers to seaplane tenders was initiated in 1938.

Seaplanes, however, were not the only solution to the long-range patrol problem. To many aviation officers, the performance and achievements of German Zeppelins during WW I demonstrated the great potential of lighter-than-air (LTA) craft — especially rigid airships — to add a new dimension to naval warfare, including long-range patrol. During the 1920s and 1930s, the Navy pursued a spirited LTA program to make that potential a reality, including the use of rigid airships as flying aircraft carriers. But the results were disappointing, even tragic. Of the five rigid airships constructed, only one survived to reach a nonviolent retirement from service, and skepticism grew throughout the fleet as to the survivability and usefulness of airships



The Consolidated P2Y-1 served in patrol squadrons until 1941 when it was replaced by the ubiquitous PBY *Catalina*.

in combat. With the crash of *Akron* in 1933 and the demise of *Macon* in 1935, the rigid airship program effectively came to an end.

In 1937 the airship program was revived when the Navy's General Board recommended that coastal patrols be resumed in nonrigid airships and a contract was awarded to Goodyear to build two new blimps, which became the prototypes for the wartime fleet of L and K dirigibles. Expectations for these blimps were considerably more realistic than they had been for rigid airships earlier. Both of them were flying out of NAS Lakehurst, N.J., in 1939 (along with a handful of older blimps), but regular production was not initiated until the following year.

Thus, the Navy had worked painfully through its infatuation with rigid airships and was headed toward a limited, but realistic, concept for the use of LTA craft. Safe, practical blimps had been developed and were in the inventory, and the difficult technical problems of operating them were largely solved.

The Naval Aviators with the most combat experience when the war began in Europe were Marines. Marine aviators had taken their fledgling force to Nicaragua and the Caribbean during the 1920s and early 1930s as part of a series of interventions. From that experience they began to work out the problems of supporting troops on the ground from the air. The dive-bombing techniques they pioneered for close air support were much like those that Navy bombing and scouting squadrons were practicing for attacks against ships.

The organization of Marine aircraft groups correspond closely to that of Navy carrier air groups, although they did not include torpedo squadrons. The First Marine Aircraft Group was stationed at Quantico, Va., and consisted of VMF-1, VMB-1 and VMS-1; the Second Marine Aircraft Group, composed of similarly designated squadrons, was located in San Diego.

Unlike the doctrine developed in part from their Latin American experience, the aircraft flown by Marine aviators in the fall of 1939 would not stand the test of time. Indeed, there were no bright spots in the inventory; it consisted entirely of biplanes. Like their Navy counterparts, Marine fighter squadrons flew Grumman F3Fs, and they had the dubious distinction of being the last units in Naval Aviation to turn them in for newer planes. The bombing squadrons were equipped with Great Lakes BGs, antiques which



The Goodyear L-1 nonrigid airship was ordered in 1937 as a trainer for follow-on airships.

had been out of production for nearly four years and out of Navy squadrons since 1938. The scouting squadrons had a mix of old landplanes and amphibians. Clearly, the Marines sorely needed new equipment if they were to effectively apply their know-how in modern combat.

By 1939 aviation had become an integral part of the Coast Guard, the third service in Naval Aviation. More than 50 aircraft were being flown from its nine air stations in support of law enforcement and relief activities, and they were becoming ever more important to the development of its search and rescue mission. The inventory included a mix of planes acquired from the Navy and those built specifically for Coast Guard operations. In the mid-1930s amphibians were teamed with cutters, which added a new dimension to Coast Guard capabilities. As tensions grew between Japan and the United States, the patrols of these cutter-aircraft teams in the waters around Alaska took on greater importance.

Among Naval Aviation's most valuable resources was the shore establishment which supported the operation of its ships and squadrons at sea. The carriers on the West Coast were homeported in 1939 in San Diego, and their air groups flew out of NAS San Diego when not embarked. *Ranger* had just moved to Norfolk, so her squadrons conducted their shore-based operations from the recently completed Chambers Field at NAS Norfolk. Patrol wings

were also stationed at these bases, plus NAS Seattle and the Fleet Air Bases at Pearl Harbor and Coco Solo. NAS Lakehurst was the only active blimp base. NAS Sunnyside, Calif., later renamed NAS Moffett Field and home of West Coast LTA operations, was for the time being in the hands of the Army. The Naval Aircraft Factory and its field were located at the Navy Yard in Philadelphia, Pa., and the Training Command was securely established in its familiar surroundings at NAS Pensacola, Fla. The Navy's aviation test facility was a long-time resident of NAS Anacostia in Washington, D.C.

A substantial enlargement of Naval Aviation's shore establishment was already under way in 1939. In April \$65,000,000 was authorized for that purpose. Moreover, from the beginning of the New Deal, funds appropriated for the Works Projects Administration and the Public Works Administration were used widely to supplement allocations for Naval Aviation, including the construction of new facilities and the rejuvenation and reopening of existing bases.

New air stations were under development at Miami and Jacksonville, Fla.; Alameda, Calif.; Kaneohe Bay, Hawaii; and Corpus Christi, Texas; and NAS Cape May, N.J., had come to life again. Auxiliary and outlying fields began popping up around the major bases — Pensacola and San Diego first, then Corpus Christi and the others. Additionally, a network of 13

Naval Reserve Aviation Bases were scattered across the country to provide reserve Navy and Marine Corps aviators with the opportunity to maintain their flight proficiency and to support the flight training program. Altogether, this system formed a solid foundation for the mobilization of Naval Aviation ahead.

Maintaining an adequate number of pilots was an old problem for Naval Aviation. The output of the Naval Academy was not sufficient to keep the cockpits filled with officer-pilots of the regular Navy. During WW I, the vast majority of Naval Aviators trained were reserves, and shortly after demobilization, the reserve program was revised to meet the modest needs of the 1920s. However, numerous impediments prevented achieving more than limited success. In 1939 there were only 138 Naval Aviators in the Organized Reserve available for mobilization. Over the years the Navy experimented with other approaches to the problem. But none of them proved to be fully satisfactory, and the situation was exacerbated considerably by the needs of the expansion program. The solution came to center on the Naval Aviation cadets.

Initiated in 1935, the Naval Aviation Cadet program produced Naval Aviators from college graduates who agreed to serve on active duty for four years (including training) with the rank of aviation cadet. At the end of their active duty, they were commissioned in the Naval Reserve, paid a bonus and returned to civilian life. They agreed to remain unmarried while on active duty and to join a Naval Aviation Reserve unit after they were released. The cadets would augment Naval Aviation's corps of regular officers during peacetime and be available for mobilization in the event of war.

The cadets' performance exceeded almost everyone's expectations and made the program a success from the beginning. Within a year, it was recognized as a permanent fixture in Naval Aviation. However, the cadets became increasingly dissatisfied with their status and title, which was hardly reflective of their duties and responsibilities. They were often older, better educated and more experienced than the ensigns of the regular Navy to whom they were junior — a galling situation. The Naval Aviation Reserve Act passed in June 1939 included a provision to commission the cadets after one year of sea duty, but their discontent was far from resolved when all pending applications for release

from active duty were cancelled following the outbreak of war in Europe.

Nonetheless, a workable system to increase the number of pilots had been developed and was being refined. Although intended to produce fewer than half of the pilots in the fleet, the cadet program was suitable for quick and massive expansion. From the prospective of the requirements ahead, it was a timely development; there were only 1,068 Naval Aviators active in the Navy and 180 in the Marine Corps at the end of June 1939.

Enlisted pilots, known as Naval Aviation Pilots, or NAPs, were part of Naval Aviation from the early days in both the Navy and the Marine Corps, but uncertainty about the program was never far below the surface. NAP flight training was started and stopped repeatedly after WW I. The Bureau of Aeronautics generally resisted the program because of the higher attrition rate experienced by enlisted flight students and various limits placed on NAPs once they arrived in the fleet, but the number of pilots required and the difficulties of obtaining them by other means left few alternatives. Additionally, a minimum of 20 percent of the Navy's pilots were required by law to be enlisted. Therefore, most squadrons had a few enlisted pilots.

However, VF-2 was a special case. It had been organized specifically as a test to determine the level of performance possible from a squadron composed of enlisted pilots lead by officer-pilot section leaders. Twelve of its 18 pilots were enlisted. With this organization, it compiled one of the most distinguished records among the carrier squadrons until most of its experienced NAPs were transferred to training command duty after the war's opening battles, but VF-2's record did not change the Navy's preference for officer-pilots.

The prerequisite phase of the flight

training program helped show the way to the massive expansion of pilot training after 1939. Called "elimination training," this short introduction was designed to weed out, or quite literally eliminate, those not suited for the rigors of flight training before they arrived at Pensacola. It was conducted all across the country and became the principal activity of the Naval Reserve Aviation Bases during mobilization. This dispersion anticipated the spread of flight training later.

The flight training program had gone through numerous modifications over the years. In the summer of 1939, it consisted of five phases and took a year to complete. Students began their program in the Navy's first regular trainer, the N3N "Yellow Peril," configured with floats for primary seaplane training. Next came "primary landplanes" flown in N3Ns without floats. The remaining parts of the program were conducted in a variety of recently obsolete land and seaplanes. Following this regular course, pilots were given experience in modern fleet-type aircraft before reporting to their assigned squadrons.

With the alacrity and decisiveness required to meet the challenge of the mobilization ahead, the program was abruptly cut in half to increase output after the national emergency was declared. Primary seaplane training was omitted entirely, and after two phases in landplanes, students specialized in the type of plane they would fly in the fleet. This modified syllabus trimmed

Below. Consolidated's PBY Catalina was well established before the war as the Navy's principal patrol aircraft. Page 25, top, Grumman F3F-1s of VF-4 over southern California. The F3F was the last biplane fighter to serve in the U.S. armed forces. None remained in front-line use at the time of the Pearl Harbor attack.



Naval Aviation in WW II

the length of flight training to six months.

The Navy's lack of preparation for war when the Germans invaded Poland was the product of circumstances beyond its control. Given traditional American attitudes and the political and economic conditions of the preceding two decades, it could hardly have

been different. But the American system was aroused in the nick of time. The ensuing race between the approaching war and the advancing readiness of the Navy was a close call. In the heroic action after Pearl Harbor, the Navy won that race. Much of the credit for its victory belongs to Naval Aviation which, to a remarkable de-

gree, provided the forces used to defeat Germany and Japan at sea. Perhaps surprisingly, many of the ships and planes which carried it across two oceans, and the innovations which allowed it to expand to meet wartime requirements, were in place or under development before the war began in Europe. ■



Curtiss SOC Seagulls aboard USS Long Island during WW II. Although production ended in 1938, the SOC served with distinction throughout the war.

FAWPRA Cubi Point

The Best Little Depot Repair Facility in the West

By LCdr. Karl Yeakel

No one knows for sure how the F-14 got loose on the hangar deck but after it came to a stop, with its nose protruding through the fuselage of an E-2, the air wing maintenance officer knew his only option to salvage the *Hawkeye* was to call on "the best little repair facility in the west."

Fleet Air Western Pacific Repair Activity (FAWPRA), Cubi Point is a unique niche in the Naval Aviation Maintenance Program. It is the only U.S. naval depot repair facility outside the continental United States which conducts hands-on, depot-level repair work. Others in Japan and Europe administer contracts for depot-level aircraft repair.

The "best little repair facility" got its start in the Vietnam war. During the early years of conflict, most structurally damaged aircraft were shipped by surface to Japan or to one of the naval air rework facilities in the U.S. Damaged aircraft requiring as little as 100 depot man-hours to repair were taking three to four months to ship to a depot-level repair activity. Larger land-based transports or patrol aircraft were too big for shipping and caused a more severe logistics problem. This slow and costly operation often kept aircraft out of commission for several months.

As the conflict grew in intensity, so did the need for a nearby structural repair facility. So, in 1966, a small team of highly qualified aircraft structural repair specialists, known as STRAAD (special techniques for the repair and analysis of aircraft damage), was assigned to NAS Cubi Point, R.P. Through the years, STRAAD became renowned for conducting repair operations with the highest degree of efficiency in the least amount of time. FAWPRA was established by Commander, Fleet Air Western Pacific in January 1972.

Utilizing U.S. military and civil service personnel and Filipino civilian management, FAWPRA repairs Pacific Fleet aircraft operating in Southeast Asia, the Indian Ocean and North Arabian Sea. A full range of depot structural



repair services — including heavy structural repair of aircraft and structural components — is part of the daily operation at FAWPRA. The staff also provides engineering services in the development of nonstandard repairs, rapid-response technical services on aircraft and aircraft structural component problems, planner and estimator services, depot field structural repair teams, and depot-level corrosion control and paint services, including a complete strip-and-paint capability.

FAWPRA Cubi supports the fleet from Guam to the east coast of Africa. Its field repair teams are dispatched to Japan, Australia, Hong Kong, Korea, Thailand, Singapore, Diego Garcia and Guam.

In 1980, as the Navy's operational commitments grew in the Indian Ocean, detachments from FAWPRA were stationed aboard battle group carriers. On-site, depot-level engineering and planner and estimator services



FAWPRA Filipino National employee Israel Mangibin removes a cracked cargo door fitting from a VMFA-152 KC-130F.

were immediately available to the Indian Ocean-deployed air wings. This significantly reduced the number of aircraft awaiting repair during in-port periods. The field teams continue to improve air wing readiness through on-board depot repair support.

Making all this happen is a work force composed of one aeronautical engineering duty officer, four enlisted members and 117 civilians. The staff includes nine permanent and eight naval aviation depot temporary-duty civilian personnel. The remaining 100 are Philippine Nationals. Temporary-duty U.S. civilians serve a minimum tour of three months. The trades represented by the civilian artisans at FAWPRA Cubi include aerospace engineer, aircraft metalsmith, airframe mechanic, machinist, electrician and aircraft painter.

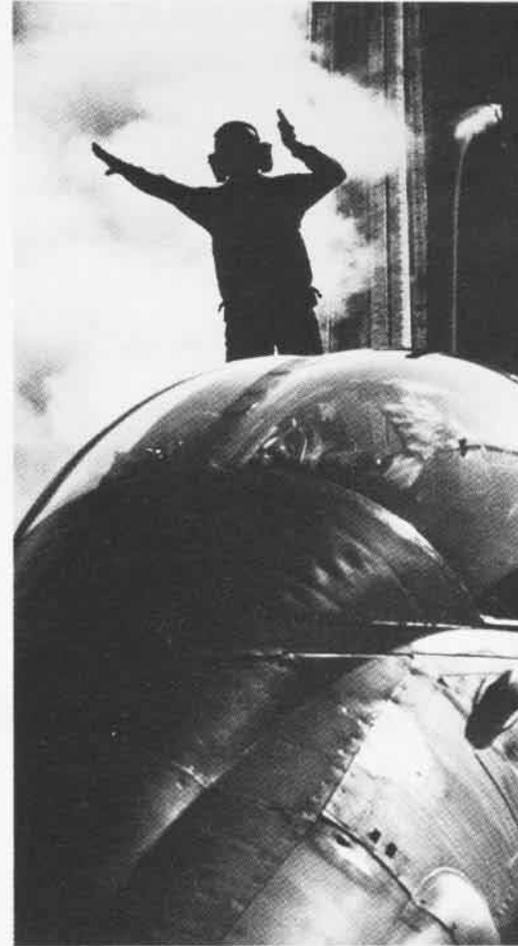
The workload at the repair activity is unpredictable, since it is determined by the number of aircraft carriers and squadrons and the number of deployed aircraft needing depot-level repair support. Annually, FAWPRA Cubi repairs approximately 250 aircraft, manufactures more than 200 complex aircraft parts/components, and responds to over 200 requests for planning and estimating services. Added to these figures are hours expended on technical research and information assistance to the fleet.

The FAWPRA team's success in performing its mission is attested by the numerous commendations it has received from Navy and Marine Corps aviation units in the Western Pacific, as well as from fleet and Fleet Marine Force commanders. From its early evolution from STRAAD, FAWPRA Cubi has earned and maintained its reputation as "the best little depot repair facility in the west." ■

LCdr. Yeakel served as the assistant FAWPRA Cubi officer and officer in charge from April 1987 to May 1989. He is presently the P-3 project officer at Naval Aviation Depot, Alameda, Calif.

Association of Naval Aviation Bimonthly Photo Competition

Honorable mention photographs in the fourth bimonthly Association of Naval Aviation Photo Contest included: Right, a VA-115 A-6E *Intruder* taxiing to the starboard catapult aboard USS *Midway* (CV-41), taken by Lt. William G. Lotz, VFA-151; below, GSEC (SW) George H. Kulp III used a fisheye lens to capture a SH-60B *Seahawk* landing aboard USS *Rentz* (FFG-46); and bottom, an HH-52A from Coast Guard Air Station, North Bend, OR, rescued 11 people after a white water rafting accident on the Illinois River near Gold Beach, photographed by the late Sgt. Joe Omlin of the Curry County Sheriff's Office, OR.



NAS Pensacola Celebrates 75th



NAS Pensacola will celebrate its 75th anniversary in November, just three years after the diamond anniversary of Naval Aviation. Strategically situated on Pensacola Bay, the country's first naval aviation station was established in 1914.

It was only three years earlier, that Capt. Washington I. Chambers brought the inventors and builders of flying machines together to prove to a skeptical Navy that aviation could go to sea successfully. On May 8, 1911, Capt. Chambers prepared requisitions for two Curtiss biplanes built by a 32-year-old motorcycle shop owner from Hammondsport, N.Y., who had been creating aircraft and their engines — Glenn Curtiss.

On November 16, 1914, NAS Pensacola was formally designated a Naval Aeronautic Station, shortly after Lt. John Towers and the entire Naval Aviation community arrived there from Annapolis, Md. Since then, Naval Air Station, Pensacola has become the nostalgic home for all Naval Aviators as well as 56 tenant commands, including the U.S. Navy Flight Demonstration Squadron, *Blue Angels*.

Awards

Maj. Michael D. Becker, USMC, received the Marine Corps Historical Foundation's General Roy S. Geiger Aviation Award in Marine Corps

History. His article, "Command and Control of Marine TacAir in Joint Land Operations," appeared in the October 1988 issue of the *Marine Corps Gazette*.

Ltjg. Hilda E. Jewell of the Naval Aviation Schools Command, NAS Pensacola, Fla., was named Naval Education and Training Command Instructor of the Year. Ltjg. Jewell instructs courses in military organization, written communication and division officer responsibilities to new chief warrant and limited duty officers, direct commissioned officers and student flight surgeons.

LCdr. William Boddy, a selected reservist with HSL-84, NAS North Island, Calif., was chosen as the Naval Reserve's Junior Officer of the Year for 1988 by Commander, Naval Reserve Force.

The Reserve Officer Association commended LCdr. Boddy for his outstanding contributions throughout the year to the retention, readiness and safety efforts of the squadron. He was instrumental in the hands-on tactical antisubmarine warfare and over-the-horizon targeting training of several new pilots who had little or no type experience.

LCdr. Boddy is the squadron NATOPS officer and a detachment officer in charge.

AE2 Philip M. Ryan, who serves on the staff of ComLATWing-1 at NAS Cecil Field, Fla., became the Navy's 1,000th service member to earn an apprenticeship certificate through the Dept. of Labor/Navy National Apprenticeship Program. This program came on line in 1976 and is administrated by the Chief of Naval Education and Training. Ryan completed 8,000 hours of specified skilled work requirements to earn his AE's journeyman certificate.

NAS Atlanta's Reserve Aircraft Intermediate Maintenance Department received the Robert S. Gray Maintenance Excellence Award for FY 88.

Lt. Karen M. Haberlin received the Navy League's Captain Winifred Quick Collins Award for Inspirational Leadership by a Woman Officer. She was selected for "outstanding leadership and performance of duty" while serving as first lieutenant of the destroyer tender *Samuel Gompers* (AD-37). Shortly after reporting, she led her

department through accelerated refresher training and deployment to the Gulf of Oman, where Haberlin served as helicopter control officer during more than 460 hours of flight operations.

VAQ-209 received the Commander, Naval Air Reserve Force Readiness through Safety Award for 1988. This award followed VAQ-209's selection as winner of a Chief of Naval Operations Safety Award for 1988.

In addition to *Enterprise* (CVN-65) earning a Battle E, three departments of the ship were recognized — Engineering received a red E, Weapons earned a black W and Medical received a blue M.



EM3 Dominic C. Rotondo and EM3 William Gallagher rewind an electric motor as part of their duties with *Enterprise's* Engineering Department.

Rescues

A Taiwanese sailor was airlifted to *Midway* (CV-41) for emergency medical treatment after suffering severe burns from a steam explosion aboard his vessel, *Yong Chan*. Xie Tzu-Sheng



Members of *Midway's* medical department assist a Taiwanese burn victim brought aboard for emergency treatment.

suffered first and second degree burns over 62 percent of his body. He was

PHAN Patrick Brown

first retrieved by *Fife* (DD-991) and then flown by helo to *Midway*.

The victim was immediately treated by the ship's medical department and was later transferred to burn facilities at Clark AB, R.P. His chances for recovery appeared excellent.

Records

In the past five years, **VC-5** responded to more requests for search and rescue operations and medical evacuations than any other unit in the Navy. It is credited with 73 military and 57 civilian saves.

Several units marked safe flying time: VT-6, 315,000 hours and 7 years; VS-31, 76,000 hours and 19 years; VFA-106, 70,000 hours; VFA-113, 65,000 hours and 15 years; VF-301, 60,000 hours and 18 years; VP-67, 58,000 hours and 19 years; VX-5, 30,000 hours and 5 years; HSL-84, 23,950 hours and 10 years; NAS Point Mugu, 21,700 hours and 10 years; and HS-7, 9,900 hours and 3 years.

Honing the Edge

The results of the **test pilot school selection board** were announced recently. Officers selected as primaries are U.S. Naval Test Pilot School Rotary Wing: Capts. Glenn M. Walters and Charles J. Coogan, USMC; U.S. Air Force Test Pilot School Fixed Wing: Capt. Martin J. Sullivan, USMC; and U.S. Naval Test Pilot School Fixed Wing: Capts. Lawrence J. McEnroe, Jr., and Russell I. Jones, USMC.

Officers selected as alternates are U.S. Naval Test Pilot School Rotary Wing: Capt. Brian J. James, USMC; and U.S. Naval/U.S. Air Force Test Pilot School Fixed Wing: Capt. Craig S. Bowers, USMC.

These 12-month courses are conducted at NAS Patuxent River, Md., and Edwards Air Force Base, Calif.

Et cetera

The Landing Signal Officer (LSO) School was relocated to NAS Oceana, Va., from NAS Cecil Field, Fla., in February 1988 because Oceana had larger accommodations for the school and a trainer.

The name, LSO, comes from early

aviation when paddles were used to signal or wave aviators coming in for a landing. Today the LSO has to rely on sophisticated electronic equipment as well as reflexes, instincts and visual acuity. The trainer provides an interactive medium within a controlled classroom environment to prepare the LSO for the exacting task. The complexity of the simulator matches the complexity of the LSO's responsibilities to guide an aviator aboard the aircraft carrier.

On June 20, 1989, **The Navy Museum**, Washington Navy Yard, Washington, D.C., opened "In Harm's Way: The Navy in the Pacific Theater, WW II." The permanent exhibit surveys the events of WW II in the Pacific from the Japanese attack on Pearl Harbor, December 7, 1941, through the signing of the Instrument of Surrender onboard the battleship *Missouri* (BB-63), September 2, 1945. It brings to life the story of the war that propelled the U.S. into the forefront of naval strategy and technology.

Coast Guard MST2 Janice Silves won the service-wide contest to name the HH-60J helicopter — *Jayhawk*. In recognition of her efforts, Silves received a scale model of the HH-60J. She is currently stationed at the Marine Safety Office, Huntington, W. Va. Previously Silves served with the International Ice Patrol, logging hours of flying time as an ice observer in a C-130 *Hercules*.

New York area residents greeted **Forrestal (CV-59)** as she cruised under the Verazzano Narrows Bridge to begin the Big Apple's "Fleet Week 89" celebration. The carrier led the parade of ships into New York harbor to kick off the event, which coincided with the city's observance of the bicentennial of George Washington's inauguration. Other ships in the parade included the Coast Guard tall ship *Eagle* and other Navy and Coast Guard ships from stations located on the eastern seaboard.

Forrestal was the first carrier to manage the complicated maneuver up the Hudson River and tie up in Manhattan in a number of years. She spent her port visit near one of her older sisters, the former *Intrepid* (CVS-11), an *Essex*-class WW II carrier which is now a sea-air-space museum permanently berthed on Manhattan's west side.

PHC John F. Fleming



"I'll take Manhattan . . ." and the *Forrestal* certainly did as she eases out from her berth at the conclusion of New York's "Fleet Week 89."

NASA recently announced the assignments of **Navy and Marine Corps astronauts** to space shuttle missions scheduled for 1990.

Capt. Bruce McCandless II is assigned as a mission specialist aboard *Discovery's* STS-31 mission, which will deploy the Hubble telescope.

Capt. John O. Creighton will command space shuttle mission STS-36, a DoD-dedicated flight aboard *Atlantis*. Naval mission specialists assigned aboard include Marine Lt. Col. David C. Hilmers and LCdr. Pierre J. Thuot.

Lt. Col. Kenneth D. Cameron, USMC, will serve as pilot for space shuttle *Discovery's* scientific mission STS-37. A highlight of the mission, scheduled for launch next April, will be the deployment of the gamma ray observatory.

The pilot for another DoD mission, STS-38, will be Cdr. Frank L. Culbertson. The mission is scheduled for launch next May aboard *Atlantis*. Col. Robert C. Springer will serve as a mission specialist.

Marine Col. Bryan D. O'Connor will be commander of STS-40, the space and life sciences-dedicated mission aboard space shuttle *Columbia*.

During its safety standdown, **VP-40** was honored to have Gen. Chuck Yeager, USAF(Ret.), as a guest speaker. Yeager, who still flies high-performance jet aircraft at age 66, arrived at NAS Moffett Field, Calif., after a demonstration flight in a VP-40 P-3C *Orion*.

Before his retirement in 1975, Yeager became the youngest person to

be inducted into the Aviation Hall of Fame, having accumulated over 10,000 flight hours in 180 different aircraft. In 1976, he was awarded a special Peacetime Congressional Medal of Honor for his courage displayed while breaking the sound barrier. Since his retirement he has served as an unpaid flying consultant for both NASA and the Air Force.



VP-40 C.O. Cdr. L. D. Getzfred welcomes Gen. Chuck Yeager with a friendly handshake and a squadron plaque. Yeager's first duty station in 1941 was at Moffett Field, where he worked as an aircraft mechanic.



Jim Bryant

ADAA Joni Nevarez is the first Navy female to graduate from Rescue Swimmer School since its opening in 1984 at Pensacola, Fla. "The course has given me confidence in my abilities to survive and rescue downed aviators in the water," Nevarez stated. She has received orders to HSL-30, Det A in Norfolk, Va.

Change of Command

ASWWingPac: RAdm. Luther F. Schriefer relieved RAdm. John W. Adams.

CAEWing-12: Capt. William C. Liebe relieved Capt. Ray L. Bunton.

CarGru-6: RAdm. Richard C. Allen relieved RAdm. Leighton W. Smith, Jr.

CVW-3: Capt. A. Hardin White relieved Capt. Jerry D. Norris.

HC-2: Cdr. John J. Ward, Jr., relieved Cdr. Larry D. LaRue.

HC-11: Cdr. Ivan E. Needles, Jr., relieved Cdr. Michael A. Lutkenhouse.

HelSeaConWing-3: Capt. Raymond M. Wikstrom relieved Capt. Kevin F. Delaney.

HSL-40: Cdr. Robert J. Prestridge relieved Capt. Raymond M. Wikstrom.

HM-18: Cdr. G. L. White III relieved Cdr. R. J. Thomas.

HS-4: Cdr. Paul H. Stevens relieved Cdr. Christopher W. Cole.

HS-7: Cdr. D. W. McElroy relieved Cdr. M. E. Persson.

HS-14: Cdr. Monte A. Squires relieved Cdr. Richard B. Ormsbee.

HS-15: Cdr. Richard W. Strickler relieved Cdr. Timothy J. Hallihan.

HSL-37: Cdr. Scott L. Steele relieved Cdr. John R. Brown.

MAG-31: Col. Randolph H. Brinkley relieved Col. Gary R. VanGysel.

MALS-11: LCol. James Rogers relieved LCol. Jon Morrow.

MALS-31: Maj. William P. Moore relieved LCol. C. S. Crowe.

MAWSLant: LCdr. Richard D. Jaskot relieved Cdr. Kolin M. Jan.

NADep North Island: Capt. Robert E. Hall relieved Capt. Thomas R. O'Connor.

NAS Jacksonville: Capt. Kevin F. Delaney relieved Capt. Norman W. Ray.

NAS Patuxent River: Capt. Donald W. Wright III relieved Capt. Stuart J. Fitrell.

NAS Whiting Field: Capt. Kenneth G. Johnson relieved Capt. Paul E. Pedisich.

NATSF: Cdr. Robert J. Heifner relieved Cdr. David Offerdahl.

TACGru-2: Capt. Dennis D. Anderson relieved Capt. Allan D. Parnell.

TraWing-6: Capt. James W. Jones relieved Capt. Marty P. Morgen.

VA-72: Cdr. John R. Sanders relieved Cdr. Barry Waddell.

VA-85: Cdr. Dean W. Ellerman, Jr., relieved Cdr. James B. Stone, Jr.

VA-128: Cdr. Gary W. Stubbs relieved Cdr. Kenneth G. Bixler.

VA-203: Cdr. Richard A. Bailey relieved Cdr. Ray K. Waddell.

VAQ-33: Cdr. D. L. Foulk relieved Cdr. M. Y. Durazo.

VAQ-36: Cdr. Richard H. Porritt relieved Cdr. Steven B. Westover.

VAQ-130: Cdr. Roger A. Pierce

relieved Cdr. Phillip L. Sowa.

VAQ-133: Cdr. Gary S. Mowrey relieved Cdr. Thomas A. Stark.

VC-1: Cdr. Joseph W. White relieved Cdr. Richard D. Norris.

VF-24: Cdr. Timothy E. Prendergast relieved Cdr. James D. McArthur, Jr.

VF-31: Cdr. Thomas D. Dussman, Jr., relieved Cdr. Simeon H. Austin.

VF-32: Cdr. George E. Slaven, Jr., relieved Cdr. Joseph B. Connelly.

VFA-106: Cdr. William Deaver relieved Capt. W. O. King, Jr.

VFA-113: Cdr. Gary Koger relieved Cdr. Jack Chenevey.

VMA-214: LCol. Russel M. Stromberge relieved LCol. Thomas R. Carstens.

VMA-513: LCol. Donald M. Mitchell relieved LCol. Russel M. Stromberge.

VMFA-251: LCol. Richard W. Walker relieved LCol. Robert A. Maddocks, Jr.

VMFAT-101: LCol. Jon Morrow relieved LCol. Paul Conner.

VP MAU: Cdr. Chris J. Cluster relieved Cdr. William M. Piersig.

VP-1: Cdr. William R. Blake relieved Cdr. David C. Hull.

VP-9: Cdr. Thomas M. Feeks relieved Cdr. Christopher L. Weiss.

VP-30: Cdr. Benjamin P. Riley III relieved Cdr. Richard G. Kirkland.

VP-31: Cdr. Ralph M. Alford relieved Cdr. William G. Bozin.

VP-40: Cdr. Raymond R. Yeats relieved Cdr. Lawrence D. Getzfred.

VR-46: Cdr. Michael J. Hichak relieved Cdr. Kenneth B. Kinney.

VS-22: Cdr. Thomas Lee relieved Cdr. John Fjelde.

VT-3: Cdr. Randall J. Hess relieved Col. Richard F. Thayer.

VT-28: Cdr. David P. Alleman relieved Cdr. John S. Atkinson, Jr.

VT-31: Cdr. Daniel N. Shaw relieved Cdr. Ronald M. Kissman.

VT-86: Cdr. John J. Doyle relieved LCol. Wayne A. Stanley.

VTC-11: Cdr. William J. Seffers relieved Cdr. Kevin F. Lover.

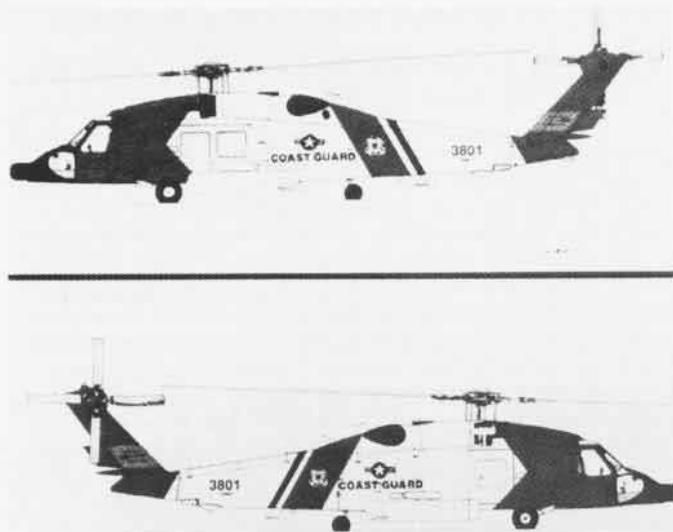
VXE-6: Cdr. Keith S. Armstrong relieved Cdr. John V. Smith, Jr.

Redesignated

Commander Fighter Medium Attack Airborne Early Warning Wings, Atlantic. NAS Oceana, Va., was recently redesignated Commander Tactical Wings, Atlantic. ComTacWingsLant is responsible for the training and readiness of Atlantic Fleet F-14, A-6 and E-2 squadrons. It also exercises command over three type air wings; the Fleet Area Control and Surveillance Facility, Virginia Capes; Medium Attack Weapons School, Atlantic; and NAS Oceana.

STATE OF THE ART

USCG HH-60J Named



U.S. Coast Guard

An artist's rendering of the Coast Guard's HH-60J Jayhawk.

The Coast Guard has designated its new HH-60J medium-range helicopter the *Jayhawk*. The name refers to the fictitious bird which represents the boldness of the pioneers who settled the state of Kansas. The "J" makes the name a natural choice because the aircraft is part of Sikorsky's hawk family. The HH-60J is capable of flying 300 miles offshore, remaining on scene for 45 minutes

and hoisting six people, then returning to its point of origin with a safe fuel reserve.

P-7A Wind Tunnel Tests

Lockheed Aeronautical Systems Company completed aerodynamic wind tunnel tests on the P-7A long-range, air antisubmarine warfare-capable aircraft (LRAACA) which it is developing for the Navy. More than 600 hours of tests were conducted to determine the baseline configuration of the P-7A airframe, which is derived from Lockheed's P-3 *Orion*, the aircraft it will replace in the mid-1990s.

Engineers used flight test data from the P-3 to form a data base before the wind tunnel tests. The P-7A's fuselage is 76 inches longer than the P-3's and the wingspan is seven feet wider. Wind tunnel test data is being incorporated into the prototype design. Lockheed will build two prototypes; the first is scheduled to fly at the end of 1991.

More T-34C Turbo-Mentors

Beech Aircraft Corporation rolled out the first of 19 new T-34C trainers for Navy primary flight training at NAS Whiting Field, Fla. The turboprop T-34C has been in use for more than 11 years at the air station. Reengineered from the original T-34B to accommodate the 400-shp Pratt & Whitney PT6A-25 turboprop engine, some 334 Navy T-34Cs have accumulated more than one-million flight hours — training every prospective Naval Aviator since 1978. The 19 additional aircraft will supplement the training command's fleet, expected to remain in service until 2005.

AWARDS

CNO Safety Awards

The following are the 1988 recipients of CNO Aviation Safety Awards:

ComNavAirPac: HC-5, HS-6, HSLs 31 and 45, VAs 27 (second consecutive year) and 95 (third consecutive year), VAQs 34, 130 and 134, VAW-114, VC-1, VF-24, VFA-25, VP-9 and VSs 33 and 41.

ComNavAirLant: HC-16, HM-12 (third consecutive year), HS-5, HSLs 30 and 42 (second consecutive year), VAs 55 and 72, VAW-121, VC-8, VF-84, VFA-87, VP-10, VS-28 and VX-1.

CG FMFPac: HMLA-169, HMMs 268 and 364, VMA(AW)-242 and VMGR-152 (second consecutive year).

CG FMFLant: HMM-261, VMA(AW)s 224 and 533 and VMFA-451.

CG 4th MAW: HMM-764 and VMA-131.

ComNavAirResFor: HSL-74, VAQ-209, VF-202 (second consecutive year), VFA-303, VP-67 and VR-57.

CNATra: VTs 6 (sixth consecutive year), 10, 21, 23 (third consecutive year) and 31.

ComNavAirSysCom: NWC China Lake, Calif.

The 1988 CNO Readiness Through Safety and Admiral

James S. Russell Naval Aviation Flight Safety awards went to ComNavAirSysCom, *Carl Vinson* (CVN-70) and *Peleliu* (LHA-5).

Collier Trophy

RAdm. Richard H. Truly was selected by the National Aeronautic Association to receive the 1988 Collier Award for outstanding leadership toward the recovery of America's manned space program after the *Challenger* tragedy in January 1986. President Bush recently named RAdm. Truly to head the National Aeronautics and Space Administration.

Pride Award

HSL-84, NAS North Island, Calif., was the first recipient of the Admiral Alfred M. Pride Award for Naval Reserve Force LAMPS (light airborne multi-purpose system) antisubmarine warfare (ASW) excellence. The one-of-a-kind award was established by the Kaman Aerospace Corporation and is presented annually to a reserve LAMPS MK I ship and helicopter squadron to recognize outstanding ASW mission readiness.

By Cdr. Peter Mersky, USNR-R

Pro Reading

Hendrie, Andrew. *Flying Cats: The Catalina Aircraft in World War II*. U.S. Naval Institute Press, Annapolis, MD 21402. 1988. 240 pp. Illustrated. \$24.95.

The USNI Press seems to have cornered the market on PBV *Catalina* books. With two books specifically on the career of the war's most famous flying boat (PBV: *The Catalina Flying Boat* by Roscoe Creed and *In the Hands of Fate: The Story of Patrol Wing Ten* by Dwight Messimer) and two other titles on flying boats, it is probably safe to say that anyone with major interest in Consolidated's ubiquitous amphibian will find all questions answered by consulting these books from the same publisher.

This latest book is one of the best, especially if you are interested in the PBV's career with foreign air and naval forces. The *Cat's* service with the RAF, the Dutch, Canadian and South African forces is well covered, and the individual theaters of operations are specifically detailed with squadrons, dates and aircraft serial numbers.

The U.S. Navy, of course, does have ample space in the book and the reader can find stories on early war service, as well as the *Cat's* well-known career as a rescue aircraft and as a Pacific raider painted in dull black. For the numbers chaser, there are appendices on American and foreign

aircraft blocks, as well as shipping sunk or damaged by PBVs.

Flying Cats is a well-researched book about one of WW II's most famous naval aircraft.

Gunston, Bill and Lindsay Peacock. *Fighter Missions*.

Crown Publishers, Inc., 225 Park Ave. S., New York, NY 10003. 208 pp. Illustrated. \$24.95.

One of the most interesting concepts and presentations to appear in aviation books, *Fighter Missions* details responsibilities of today's modern fighter aircraft, including ground attack, interdiction and maritime strike aircraft, as well as the traditional air-to-air fighter. Written by two well-known British authors, the text includes historical backgrounds detailing the development of the type of aircraft discussed and the particular mission. The reader then rides along on a fictional flight attacking ground targets, engaging enemy MiGs or supporting hard-pressed "grunts" on the ground.

The heart of the book includes numerous color schematics as well as detailed illustrations of the missions discussed showing the subject aircraft and its crew doing their jobs in the heat of the battle. The text reads well and the scenarios are well detailed and believable.

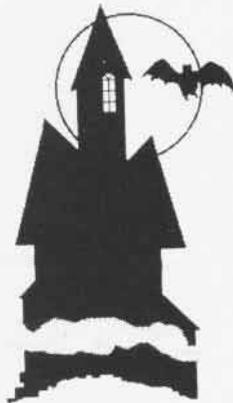
WEATHER FRONT

By Capt. Neil F. O'Connor, USN(Ret.)

Radiation Fog

During the autumn months and towards Halloween, when the days are mild and nights cool, radiation or ground fog is a common occurrence. It develops most frequently on calm, clear nights in late evening or near daybreak in low-lying areas where pockets of cooler moist air have collected. Although relatively shallow, radiation fog can be particularly dangerous for the oncoming night watch if it overspreads a busy highway.

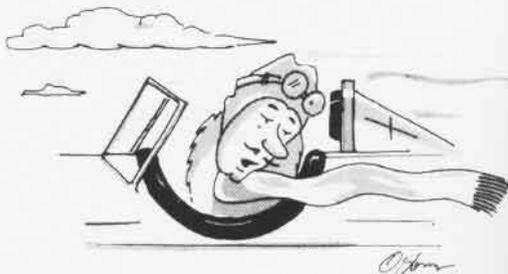
The difference between air



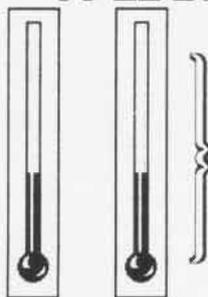
temperature (T) and the dew point temperature (Td) is the best indicator for predicting radiation or ground fog. (Dew point is also an index of the amount of water vapor present in the air.) As the nighttime air temperature falls as a result of contact with the cooler ground surface, it approaches the dew point temperature. When the two coincide, ground fog is most likely to form. Under calm conditions it may be only a few feet thick, but with a slight breeze, as frequently happens at sunrise, mixing occurs and the fog rapidly increases in depth.

Mountain valleys are particularly subject to radiation fog. Cold air draining downward from higher elevations at

night forms large pools of cool air where fog readily develops. Radiation fog formed in this fashion is frequently more persistent than in flatter terrain areas. As viewed from the cockpit, it has one important unpleasant characteristic: extensive ground fog cover cannot be readily distinguished from a layer of stratus clouds when observed from above unless tall buildings, power lines or other structures penetrate the fog layer. The ceiling associated with stratus clouds is usually several hundred feet above ground level, and there is also a degree of slant range visibility available beneath the cloud base. That's not the case with ground fog which has a tendency to lie on the surface. Fortunately, this type of fog normally dissipates rather rapidly after sunrise — unless a cloud deck moves in to block the sun's rays.



when



FOG

$$T = T_d$$

Locator

The author of a history of the F2H-3 *Banshee* wants to locate Frank Harrington, USN exchange *Banshee* pilot, flying with the Royal Canadian Navy, VF-870, Shearwater, Nova Scotia, in 1956-58; and Earl Craig, with the RCN circa 1961. Call me at (703) 370-0510 or write:

Capt. Edward R. Hallett, USN(Ret.)
384 S. Pickett St.
Alexandria, VA 22304

Aviation Avionics Rating Merger

SecNav approved combining the AT, AQ, AX and AV ratings into two ratings: avionics maintenance technician (AV) and aviation electronics technician (AT). The expansion of the AE rating from E-8 to E-9 (AECM) was also approved. Transition to the new rating structures is expected to be completed by mid-1991. For detailed information, contact Public Affairs Office, Naval Military Personnel Command at autovon 224-2000 or (202) 694-2000.

Reunions, Conferences, etc.

USS Boxer (CV/CVA/CVS-21/LPH-4) reunion, September 7-10, Milwaukee, WI. Contact Earl Duncan, 3039 Vincent Rd., North Street, MI 48049, (313) 982-5437.

Carrier Air Group 153/15 (1945-49) reunion, September 27-30, Virginia

Beach, VA. Contact Capt. Al Rappuhn, 10920 Manatee Dr., Pensacola, FL 32507, (904) 492-1829.

VR-24 reunion, September 14-17, Duluth, MN. Contact Pete Owen, 24633 Mulholland Hwy., Calabasas, CA 91302, (818) 348-4056.

NATS reunion (Berlin Airlift), September 24-October 1, Frankfurt, Germany. Contact Victor Kish, 12716 Silver Ln., Sugar Creek, MO 64050.

USS Card (CVE-11)/VCs 1, 8, 9, 12 and 55 reunion, September 21-24, San Diego, CA. Contact Joe Macchia, 8290 Melrose Rd., Melrose, FL 32666.

VMF-312 reunion, September 14-17, Scottsdale, AZ. Contact T. L. Smith, 106121 E. Michigan Ave., Sun Lake, AZ 85224.

VAKs 208 and 308 reunion, September 30, NAS Alameda, CA, area. Contact LCdr. Steve Stokes, autovon 686-2373 or (415) 869-2373.

WW II Navy V-12 reunion, September 28-October 1, Washington, DC. Contact Dr. Byron Doenges, c/o U.S. Navy Memorial Foundation, P.O. Box 12728, Arlington, VA 22209-8728.

USS Chandeleur (AV-10) reunion, October 3-8, N. Charleston, SC. Contact Kenneth E. Boyd, Rt. 4, Box 145, Culpeper, VA 22701, (703) 854-5076.

USS Fanshaw Bay (CVE-70) and air groups reunion, October 12-15, Red Lion Inn, Ontario, CA. Contact Duane Iossi, 310 Edwards St., Ft. Collins, CO 80524, (303) 482-6237.

Marine Corps Aviation Association convention, October 5-8, Pensacola,

FL. Contact Stan Carpenter, Box 296, Quantico, VA 22134.

VC-90 reunion, October 5-8, San Diego, CA. Contact Dick Davis, 408 Carlo St., San Marcos, CA 92069, (619) 727-8650.

VX-4 reunion, October 28, NAS Point Mugu, CA. Contact LCdr. E. C. Neidlinger, VX-4, NAS Point Mugu, CA 93042, (805) 989-8766.

Guadalcanal campaign veterans reunion, October 12-15, San Antonio, TX. Contact Gene Keller, 4043 Standish, Kalamazoo, MI 49008, (616) 344-0265.

VPB-74 reunion, October 12-15, La Playa Hotel, Daytona, FL. Contact W. J. Barnard, 5631 Devon St., Port Orange, FL 32127.

USS Leyte (CV/CVA/CVS-32) and air groups reunion, October 12-14, Memphis, TN. Contact Clarkson Farnsworth, 615 Sanders Ave., Scotia, NY 12302, (518) 346-5240.

NAS Corpus Christi (1964-67) planned reunion, October 13-15, Corpus Christi, TX. Contact Sidney Engberg, 1817 N. Summit St., Wheaton, IL 60187, (312) 690-8517.

USS Kitkun Bay (CVE-71) and VCs 5/63/91 reunion, October 19-22, Seattle, WA. Contact John Richter, W63 N374 Hillcrest, Cedarsburg, WI 53012, (414) 377-2297.

VC-9 reunion, October 26-29, Hot Springs, AR. Contact Len Poth, 3 Pontevedra Cir., Hot Springs Village, AR 71909.

The Association of Naval Aviation Photo Contest

The Association of Naval Aviation and its magazine, *Wings of Gold*, is sponsoring an annual photo contest, beginning in January 1989. There will be six bimonthly winners and end-of-year first, second and third-place winners. The contest is intended to capture on film the exciting world of Naval Aviation, its airplanes, ships and people in the Navy, Marine Corps and Coast Guard. Winners will be announced with their photos in *Wings of Gold* and *Naval Aviation News*. Everyone is eligible except the staffs of the Association of Naval Aviation and *Naval Aviation News*. The ONLY requirement is that the subject matter pertain to Naval Aviation. Submissions can be in black and white

or color, slides or prints of any dimension.

Cash Awards

| | |
|------------|-------|
| Bimonthly: | \$100 |
| Annual: | |
| First | \$500 |
| Second | \$350 |
| Third | \$250 |

Deadlines for submissions for the bimonthly awards are the 1st of February, April, June, August, October and December. The deadline for the annual awards is December 1. Please be sure to include a complete name and address with each entry.

Bimonthly winners will be selected by the staffs of *Wings of Gold* and *Naval Aviation News*. All photos submitted throughout the contest period, whether or not they were

bimonthly winners, will be considered for the annual awards by an expanded panel of judges which will include recognized out-of-house experts in the photography field.

This ensures that EVERY ENTRY will get a fresh look. Photographs may be published by the Association of Naval Aviation (ANA) and *Naval Aviation News* and used for promotional purposes by the ANA, but owners retain their rights of usage.

Mail photographs, **WITH CAPTIONS**, to: Association of Naval Aviation Photo Contest, 5205 Leesburg Pike, Suite 200, Falls Church, VA 22041.

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New Stinger for Navy

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