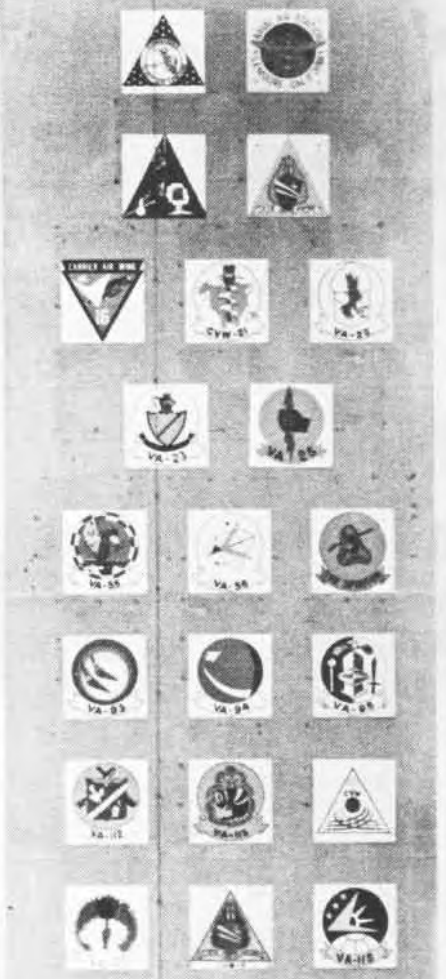
NAVAL AVIATION NEWS



In this Issue:

DERBY VII

JANUARY 1974

NAVAL AVIATION NEWS

FIFTY-SIXTH YEAR OF PUBLICATION

THE STAFF

COVERS — JOC Warren Grass took the cover photograph of NAS Lemoore's control tower while doing this month's feature story on Derby VII. At right, a crewman is ready to "hook" a helo. Back cover is the work of Sgt. E. S. Saylors who did the GEMO photos on pages 24 and 25.

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EDITOR'S CORNER

The lieutenant commander, a forlorn figure in green flight gear, walked dejectedly into the ready room, tossed his helmet bag onto a seat and slumped into an adjacent chair. He stared silently at the blackboard, chalk-marked from the preflight brief and issued a mildly profane expletive to the otherwise vacant room.

Shortly, the erect, smiling form of the skipper framed the doorway.

"Ah, my friend, judging by your expression I would say you are somewhat unhappy over your bombing scores today. Nevertheless, out with thy wallet and pay me my due."

The pair had just returned from an exhausting session of 45-degree angle bombing at the Fallon, Nev., target complex. Both were experienced attack pilots and, over the years, had totaled enough runs to be counted in four figures. The Mk 76 practice bomb hits had been quite good on this day. The lieutenant commander, with a 125-foot CEP (circular error probability), had, however, lost again to rocket number one, who scored six consecutive strikes within 75 feet of the bull's-eye.

"Every time I match you, skipper," said the lieutenant commander, "I come back like the Houston Oilers and you stride in like the Miami Dolphins."

"Technique, consistency and concentration," stated the C.O., "are the ingredients which will lead you to success."

The lieutenant commander frowned. "OK, skipper, we've done it before but, for my enlightenment and peace of mind, will you please describe, one more time, how you do it?"

The C.O. erased the board, drew a new circle and inscribed a single line, extending through the twelve and six o'clock positions.

He traced the aircraft's flight path in relation to the target, relating the procedures as he went along. Step by step, with a lucidity a first grader could comprehend, he talked of airspeed, trim, altitudes, approach to the bomb line, angle of bank at roll-in, pipper tracking, release and pull-up. He detailed all the parameters involved in a maneuver designed to deposit an air-carried weapon on a predetermined ground target.

The lieutenant commander was attentive and anxious to discover any idiosyncrasy in the skipper's dissertation which might uncover for him the secret between a 50 and a 125-foot CEP. In the end, he remained baffled. The skipper completed his discourse and tossed the stub of chalk into a tray.

"You may not believe this," said the lieutenant commander, "but your procedures and mine, at least as I interpret them, are identical. I would have to conclude that you are, to put it rather simply, a little bit better than I."

A knowing smile crossed the C.O.'s face as he extended his hand, palm up, to accept his winnings.

Indeed, some pilots are better than others at putting bombs on target. ComLAtWingPac's Derby VII, *portrayed in this issue, illustrates the fact. As described in the operation order, the Derby's mission is to ". . . significantly enhance the ability of the squadrons and higher authority to determine the state of operational readiness through comparison with equivalent units operating in an identical tactical environment." The nature of the competition induced pilots and the crews who groomed the planes to strive for perfection. It was an exhausting endeavor which yielded joyful tribute to the victors. The losers, at the same time, retained appropriate spirit with undaunted cries of "Wait till next time!"*

In athletics, especially those played at the professional level, inches count. Defeat can be spelled by a golf ball spinning away from the cup at the final instant. Victory might be achieved when, on a field goal attempt, the football rises powerfully, end over end, bangs against the crossbar and topples through for three points.

In Derby VII, *it was more a matter of feet than inches but, nonetheless, as the challengers will testify, a single errant hit could eliminate a participant from the honors.*

Derby competition demonstrates how much can be accomplished within a unit when maintenance crews and pilots centralize their efforts and focus them on a single goal. It achieves something else which, perhaps, was best enunciated by VA-304's Lt. Tom Scully.

A previous Golden Bomb Award winner, he is known around the Firebird *spaces as the Vince Lombardi of aerial bombing. He has been both irritant and stimulant in his exhortations to the enlisted and officer force, urging them to push hard for victory.*

He says, "These derbies increase a squadron's skill in performing a vital mission: delivering the ordnance safely and expeditiously with maximum effect. For an attack pilot, that's what it's all about!"

did you know?

Helicopter Trap

NATF Lakehurst, N.J., is testing haul-down and securing systems for helicopters on nonaviation ships to permit operations in a wider range of sea conditions than is presently possible. It is hoped that a system will be ready for evaluation aboard ship in April. One system tested, called Beartrap, is operational with the Canadian Armed Forces (Maritime). A messenger cable is lowered from the helicopter to the ship's flight deck, manually connected to a haul-down cable and hoisted back to the helo. Slack in the cable is taken up, tension applied by a landing signal officer (LSO) via a control console and the pilot is signaled to begin his descent. A haul-down cable provides centering guidance, allowing the helo to land with its probe in the Beartrap. The LSO actuates the jaws of the Beartrap which engage the probe, securing the helo. Also tested was the French Harpoon securing device. As the helo lands, a hydraulic probe is extended manually or automatically. Mechanical fingers on the probe penetrate and lock onto a grid on the flight deck. Tension is applied hydraulically to produce a down load on the helo to keep it from sliding. Release is possible only by the pilot (above). Other devices being tested are variations of the Beartrap.

Soft Landing

Textron's Bell Aerospace Division is designing an air cushion landing system for remotely piloted vehicles (RPVs). Unmanned aircraft are used for a variety of missions. While some are recoverable, many are not. It is believed that an RPV equipped with the landing system could be recovered on most surfaces with minimal damage. The air-cushion trunk of the system resembles an elongated rubber ring attached to the bottom of the fuselage. Air from an on-board air supply source is fed into the trunk and escapes through numerous small holes in the bottom. This creates a pressure which supports the RPV and provides a layer of air lubrication that keeps the trunk clear of the surface. When the RPV is in flight, the trunk is deflated and fits snugly against the underside of the fuselage.

1,000 and Counting

When LCdr. George Gedney lowered his hook and touched down aboard USS *Lexington*, he joined a very select group — men who have made 1,000 carrier landings. Gedney, serving on the staff of the Chief of Naval Education and Training, NAS Pensacola, Fla., was flying a T-2C at the time. He made his first landing in an SNJ in July 1953 during flight training. LCdr. Gedney says the only active deck he has not landed on is *JFK's*.

did you know?

Escape System An in-flight escape system is under development for the AH-1. The most advantageous egress direction is upward, and three events will occur simultaneously after the new system is actuated by the pilot or gunner: the main rotor blades will be severed, allowing their momentum to carry them away from the helicopter; engine power will be cut, eliminating the yawing moment from the tail rotor; and the cockpit canopy will be jettisoned to provide an egress opening for the crew. After two-tenths of a second, the blades and canopy will be clear of the helo. The pilot and gunner will then be extracted from the cockpit by a rocket system which provides sufficient thrust to permit parachute deployment and safe descent. A major portion of the test program is being done at NATF Lakehurst, N.J., with a helicopter fuselage and a complete aircraft, each installed at the recovery system test site. Tests will be done with the fuselage in various attitudes to determine the best means of removing the test cockpit canopy and extracting the crewmen. The aircraft installation will permit tests of the complete escape system. A preliminary test, that of severing the rotor blades with the helo in hover but anchored to the ground, demonstrated successful blade separation using shaped explosives. Other scheduled tests include those to check main rotor blade flutter, and at least one to test main rotor blade severance and canopy removal with the helicopter mounted in an attack mode.

No Accidents Training Squadron 19 at NAS Meridian, Miss., has flown over 30,000 accident-free flight hours. Ens. James Taber and Commander Frank J. Peters, Jr., flew the milestone flight on October 25, 1973.

A Lot of Time Chief Warrant Officer Henry Wildfang has amassed an impressive 20,000 hours of safe flying. The 33-year Marine Corps veteran has also accumulated 10,000 hours in the KC-130 which he flies with Marine Aerial Refueler/Transport Squadron 252, MCAS Cherry Point, N.C. A former Naval Aviation Pilot, Wildfang's flight time adds up to 2 years, 103 days and 9 hours — nonstop. He was recently presented a plaque from Lockheed Georgia Company for his time in the *Hercules*. Major General Thomas H. Miller, Commanding General of the 2d Marine Aircraft Wing, makes the presentation, right.

Stick Around A year ago, VP-5, NAS Jacksonville, Fla., had a reenlistment rate of only seven percent. Today that figure is running at more than 50 percent, about double the Navywide average. Why the turnabout? Squadron skipper Commander Frank Woodlief has a simple plan: follow usual Navy practices of a strong chain of command to give a man pride in work, be honest with a man about his usefulness to the Navy and bolster the career counseling office. Tremendous emphasis is placed on those at the supervisory level — all are responsible for on-the-job counseling and people-to-people communication.

A-7 Buff LCdr. Lew Dunton has been acknowledged as the first Navy or Air Force pilot to log 2,000 flight hours in the A-7 *Corsair II*. He accomplished the feat in May 1973 with VA-37 and recently received a plaque from the Ling-Temco-Vought Aerospace Corporation to commemorate the milestone. His first A-7 flight was in September 1967, also with VA-37. He is now enrolled in the Command and Staff Course, Naval War College, Newport, R.I.

National Range

Formal dedication of the National Parachute Test Range (NPTR) was held November 16 at El Centro, Calif. Rear Admiral John Thomas, Deputy Chief of Naval Material for Operations and for Logistic Support, was the guest speaker. He was assisted at the ribbon cutting by NPTR's first C.O., Captain C. E. Rich. The dedication marked the redesignation of the Joint Parachute Test Facility as the seventh national range. In its upgraded status, the range will provide common support for Department of Defense-designated government agencies and other approved users. It will be used for testing and evaluating all applications of aerodynamic decelerators, associated systems, assemblies and equipment.

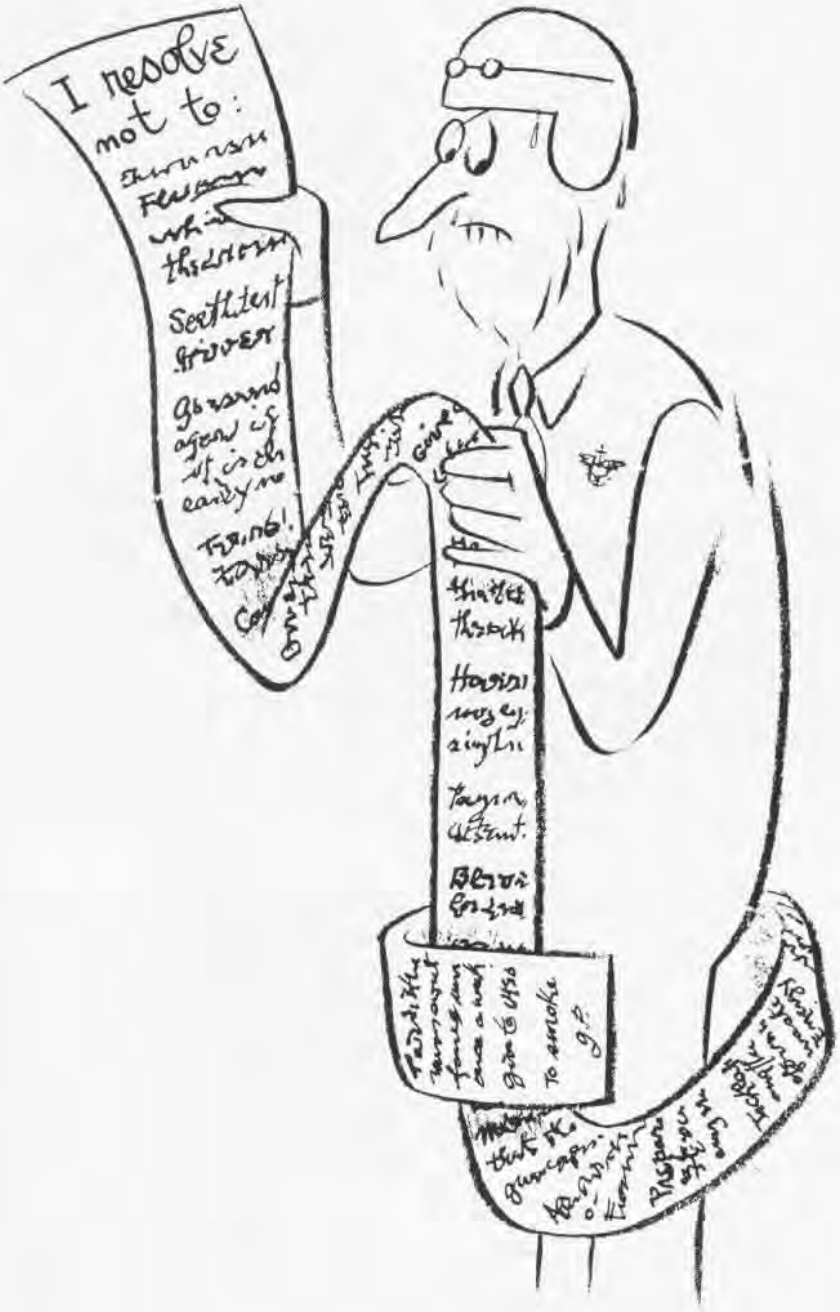
Deep Freeze

Ski-equipped UH-1N *Hueys* of VXE-6 are the lifelines for international scientists working in the fields of Antarctica. A helicopter crew checks on the welfare of scientists in the Dry Valleys area.

Salud

Five-year-old Bobbi Hutson will long remember the VP-50 *Blue Dragons*. An outbreak of meningococcal meningitis recently hit the 5,000 residents of Adak Island, Alaska, where she lives. When Bobbi contracted the disease, she needed more advanced and specialized medical care than she could receive at the Adak Dispensary. The squadron's Crew Nine with plane commander Lt. Jim Kirkendall and co-pilot Ltjg. Bill Bozin went to her rescue and flew her to Elmendorf AFB, Anchorage, more than a thousand miles away. After two weeks, she was given a clean bill of health and returned to Adak. Her homecoming was complete with ice cream, cake and a huge toy teddy bear.

GRAMPAW PETTIBONE



Two Navigators???

An EA-3B *Skywarrior* was scheduled for a routine flight of about three hours from NAS Small Island to NAS Large Island. During the flight, one of the navigators was to receive his navigator check flight. The crew consisted of the pilot, an ECM operator, two navigators and the plane captain. Ltjg. Magellan was the designated NATOPS navigation examiner and Ltjg. Prince Henry the Navigator was the navigator who was to be checked. He gathered the navigation equipment and, upon checking the sextant, found that the bubble in the sextant could not be reduced in size.

Following an uneventful departure, en route radio was contacted and the flight proceeded on course. Aircraft position reports were made using a dead reckoning (DR) plot. Approximately midway (timewise) into the flight, the pilot manually moved his compass heading to see if the navigator was including it in his scan, then reset it. At this time, it was noted that the wet compass was heading 290 degrees (the desired heading was west) and drifting northward; the main compass also appeared to be drifting.

The navigator decided to take a deviation check. When he checked the air almanac, he discovered that although the months were correct, he had the *wrong year* (1972 vs 1973)! However, the navigators interpolated the 1972 almanac for sun position and subsequently took two deviation checks; both were discounted as being inaccurate since neither was close to the heading indicated on the compasses.

Approximately two hours and 45 minutes into the flight, when land should have been in sight, the pilot declared an emergency. The pilot experienced some difficulty in convincing the controlling agency that they were in fact LOST. Direction finding (DF) steers, some of which were completely unreliable, were received. One placed

ILLUSTRATED BY Osborn

them over land when, in fact, no land was in sight. It became more apparent that the *Skywarrior* would not reach land or an airport before fuel starvation occurred.

Approximately five hours after the start of the flight, the crew bailed out. All were rescued at a position 1,000 miles off course!

Grampaw Pettibone says:

Thunderin' thunderin's! Do you believe that an aircraft with two navigators aboard got LOST? Sure there were extenuating circumstances — like the compass failure and inaccurate DF steers — but these couldn't hold a candle to the "people failures." First of all, what good are navigators when they let you down at the time you need them most. Anyone can navigate when all the electronics are working right but real pros can do it when the chips are down (*NANews*, March 1973, p. 5). Secondly, supervision at the home station looks shaky. Why are old almanacs left lying around the navigation office and why did one navigator claim there were no other sextants in the navigation office when he discovered the one he had was less than satisfactory? Undoubtedly, this was a leg of a flight flown many times by this unit. A short ride overwater. A no-sweat navigation flight — COMPLACENCY!

It appears to be sound procedure to take a deviation check shortly after level-off or following last TACAN fix. The point is, nobody really navigated until they had compass problems. Relying on a DR plot solely for position fixing is not professional navigation! If this was a navigation check flight, wasn't the navigator NATOPS instructor planning to check the examiner's celestial proficiency?? Looks like the answer was "No" since the sextant was only used after the compass difficulties! This fiasco is one of the most nonprofessional performances I have witnessed! I can't believe it!!!

Drag and Splash

Following a complete and thorough briefing, the Marine CH-53 *Sea Stallion* departed the ship for a practice minesweeping flight, towing an anti-mining device. The crew consisted of a captain as aircraft commander with a first lieutenant as copilot. Approximately one hour after takeoff, the #2 engine chip detector light came on and the pilot informed the ship of the trouble.

A circuit breaker check and recheck did not change the chip detector light and a scan of the instruments showed no engine malfunction. At this time the pilot decided the chip light represented an electrical failure and elected to return to the ship, which was two miles away, while towing the anti-mining device. Approximately 12 minutes after the chip detector light came on, a loud "pop" was heard from the #2 engine and the pilot, feeling this indicated failure of the #2 engine, brought it to idle cutoff and immediately pushed the #1 engine full forward. He then took control of the aircraft from the copilot and released the tow cables.

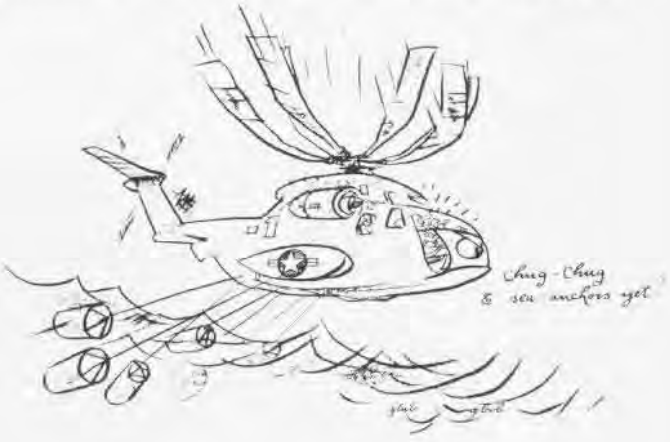
He noticed that the rpm was passing through 55 percent. He momentarily lowered the collective to increase the rpm, but noted the altitude passing through 50 feet and decided to flare to cushion the landing as much as possible.

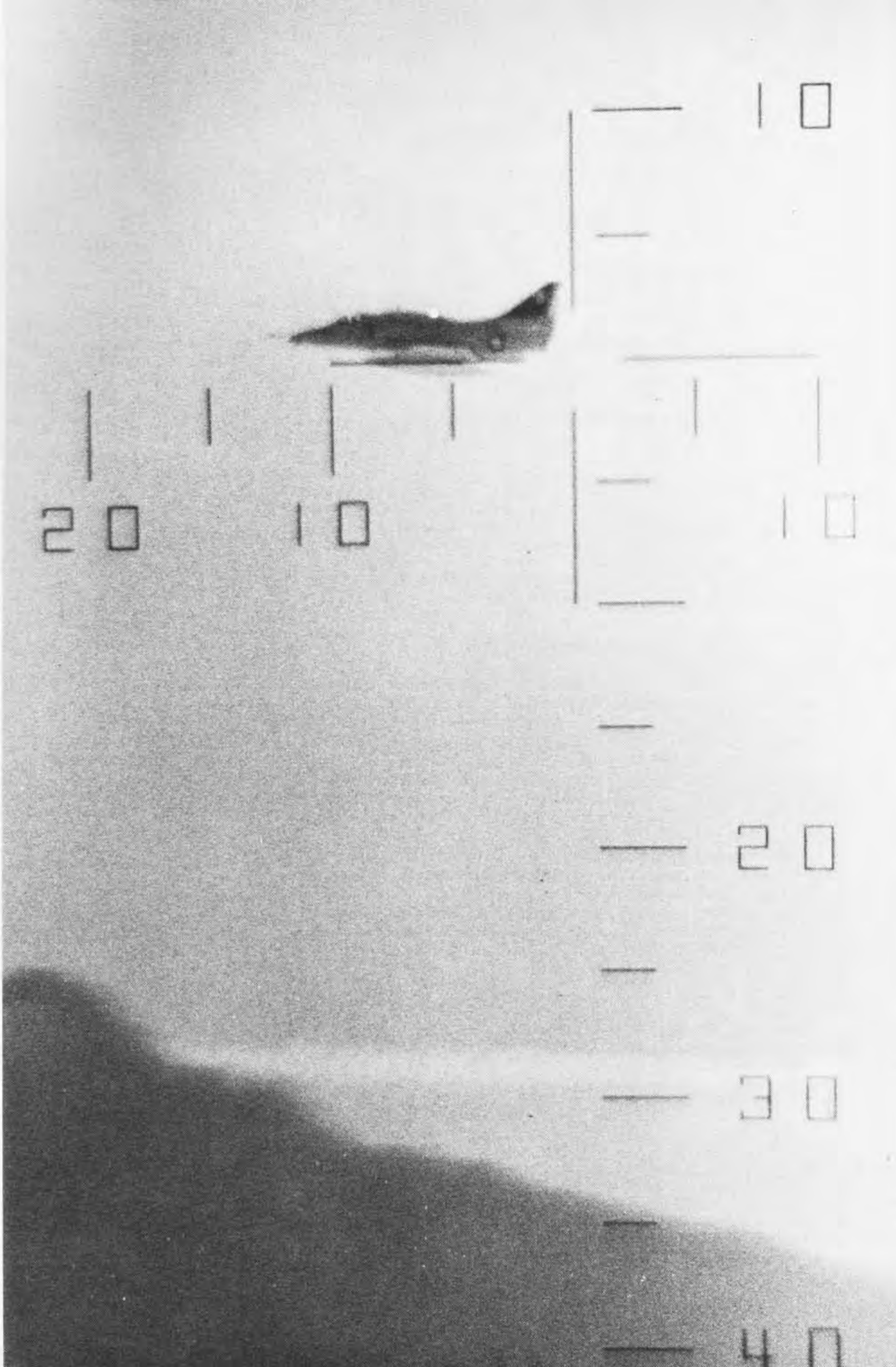
The aircraft contacted the water in a level attitude with zero to five knots forward airspeed at about 200 to 300-feet-per-minute vertical rate of descent. The aircraft immediately began a left roll and all four crew members exited without difficulty. They remained on top of the floating aircraft for the ten minutes it took a boat to arrive.

The entire crew boarded without incident and were later found to have sustained no injuries.

Grampaw Pettibone says:

Jumpin' Jehosaphat! What does it take to make some pilots follow NATOPS?!? Appears to me that it makes good sense when you are dragging somethin' from your machine to drop it when you develop troubles. This gent fooled around for approximately 12 to 15 minutes with that warning light on when he was only a few minutes from the ship. Just can't explain that one! As far as "learnin' a lesson" goes — we can't afford lessons or pilots of this type.





DERBY VII

Story and photos by JOC Warren Grass, CCGPac

"Contests allow no excuses. . . ."
Ibycus, circa 550 B.C.

Commander Light Attack Wing, Pacific conducts bombing derbies on a semiannual basis. Similar to those performed by other commands, Derby VII, held at NAS Lemoore last November, was an exceptionally well organized and rigidly controlled exercise designed to evaluate the operational readiness of attack squadrons. In recent years, the competitive spirit of derby participants has increased in intensity. Although a measure of fun and spirit-lifting squadron rivalry are continuing by-products of such contests, the salient goal of those who participate is to win. And, in order to win, the extreme efforts of maintenance personnel combined with pilots perfecting their aerial skills must be exercised. In one sense, these efforts are much like those in football wherein the pilot, as a quarterback, cannot do his thing without the technical accomplishments of his front line, personified by his hangar and line crews. There can be no excuses for a bad hit and second chances are verboten. As former skipper of VA-25, Commander Ed Greathouse, now on the staff of ComLAtWingPac, puts it, "We try to make the derbies as realistic as possible. In combat, the guy you're bombing or shooting at isn't going to tell you how badly you hit or missed him."

Using spotting scope, Bud Eukel of China Lake eyes bombing run of A-4 Skyhawk.

The division of *Corsairs* appears on the horizon above the barren, moon-like surface of the Nevada landscape. Their time on target: 0655. Time now: 0655. The competitors from VA-97, call sign *War Ace*, are ready for their event.

In the range control tower at NAS Fallon's B-17 Echo target, SA Tommy Medina clears the flight for dive-bombing attacks to be followed by strafing runs. There is momentary silence as the spotting crews eye the black trails of smoke which signal the position of the A-7s.

While Medina tends the radio, SM2 Fred Kately issues brief commands to the remainder of his crew — a man on the triangulation board and three spotters, two of them in outlying towers, the third beside Kately.

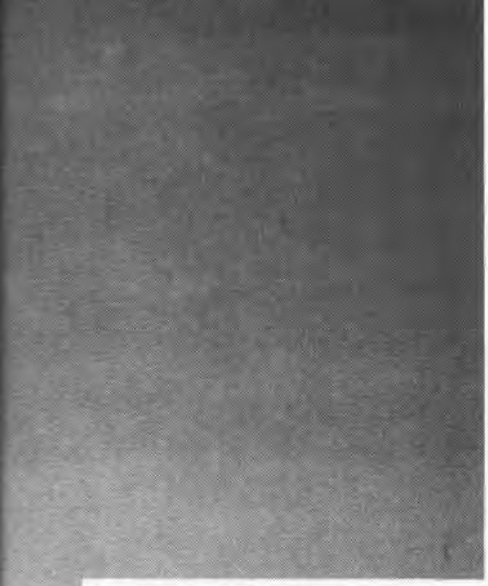
The quiet of the desert is then shattered as, seconds apart, the *War Aces* bank their machines and roll in. Maneuvering their aircraft into steep dives, they aim at the target, a series of concentric circles surrounding a bull's-eye etched into the desert-like earth.

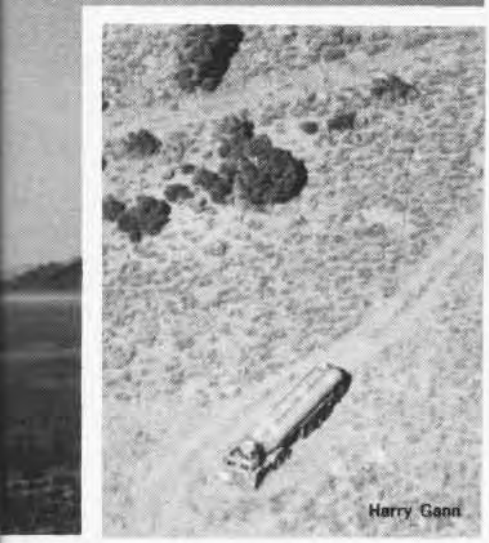
As each white plume of an exploding practice bomb erupts, the radio which links the three towers, providing instant communications, crackles with the spotters' voices. Each calls the clock code and number of feet of the hit from the bull as he calculates it from his vantage point. The combined reports are quickly evaluated to determine the pilot's score.

The next event requires a shallower angle of dive and after the quartet of pilots verifies visual contact with the strafing target, they begin a series of runs, each of which culminates in the terse staccato of machine-gun fire.

At one point, Medina keys his microphone. "Watch it," he begins. "You're below ten de. . . ."

Kately cuts him off in mid-sentence. "You can't tell 'em anything," he cautions. "This isn't practice, it's a bombing derby. We're not to give the





Opposite page, bomb releases from VA-127 Skyhawk. Inset is target at China Lake. Left, VA-122's Lt. Carl Armstrong reviews aircraft discrepancies. Above, A-7 Corsair launches.

DERBY VII

pilots any information to help their scores."

The radio cracks. "This is *War Ace* Lead. Repeat your last."

"*War Ace* Lead, this is 17 Echo, disregard my last," gulps Medina.

And so it went at *Derby VII*, an evolution which involved 14 fleet and reserve squadrons and about 3,000 personnel.

Participating squadrons were VAs 122, 125, 127, 25, 113, 27, 97, 146, 147, 192, 195, 303, 304 and 305, the last three being reserve units. There were three events scheduled: I. visual delivery held at NAS Fallon targets; II. visual delivery at Naval Weapons Center China Lake targets; and III. all-weather delivery. Awards were divided into many categories, individual and squadron. These categories and the winners are outlined on page 16.

Although Fallon targets, used extensively for practice year-round, are quite well known to the pilots, those at China Lake are less familiar and are established in a more combat-type environment. For example, a target there might be an old bus positioned without reference lines or circles to aid pilots, as is the case at Fallon.

Poor weather, including heavy winds, played havoc with the Derby but rescheduling permitted completion of most activities. In any case, all involved faced exhausting challenges in fulfilling the essential requirements for success.

These requirements include extensive planning on the part of both ComLAtWingPac and the squadrons, long hours of maintenance, prepping the planes, and a multitude of practice missions. Equally important are the spotting, evaluating and recording of hits to ensure maximum accuracy in scoring.

At China Lake, Lt. Al Pease, who heads a five-man VX-5 data processing crew, is in charge of the sophisticated, computerized scoring. His unit is responsible for collecting thousands of pieces of data, programming them and feeding the numbers into a computer.

Harry Gann

Left, A-7s awaiting pilots. Above, hooded A-7E pilot flies all-weather route. Below, China Lake spotting crew at work.

DERBY VII

He admits, "We've compiled results for at least four derbies . . . and it's been hectic every time out. Somehow, we get it done."

In addition to high angle dive-bombing and strafing, pilots are tasked with medium angle loft and laydown deliveries — techniques which must be mastered by the attack pilot. For the A-7C/E squadrons, whose weapons systems are more advanced than those of other participants, an additional challenge is faced in Event III. As chase planes monitor flights, every pilot uses radar as the principal mode of navigation, flies a lengthy route to two separate targets, makes bomb drops at each and returns to home base. To ensure that he has no visual reference to the ground, the pilot is directed to activate his thermal radiation shield which functions as a hood, blocking all but the cockpit's interior.

Pilot from VA-122 checks security of MK 76 practice bomb.

In the Derby, a single errant hit can mark the difference between the winner's award and second place. VA-303 and VA-304, for example, units which have done well in previous derbies, were separated from the Silver Bomb Award by a very scant 20 points.

The delivery maneuvers themselves are demanding exercises in technique, consistency and concentration.

In dive-bombing, a pilot rolls in at high altitude, having previously estimated wind effect, and, accelerating to from 400 to 500 knots, must guide his aircraft along a nearly vertical path to the target. In the short seconds between roll-in and release, he must scan instruments and the expanding view of the terrain beneath him, while ensuring his gunsight pipper is where he wants it in relation to the bull's-eye. Of course, the more sophisticated his weapons system the easier his task. The pull-up, after release, is largely a physical exercise as the pilot, with heavy back pressure on the stick, raises the nose and exerts four or more Gs on his body as he zooms to altitude and his airspeed bleeds off.

Strafing runs are similar to those in dive-bombing but done at lower altitudes and dive angles. Trim is especially important, for a ball out-of-center can angle the bullet pattern considerably off target.

Total command of altitude and airspeed control is critical in laydown deliveries which are made at low altitudes in level runs. Deviations of several feet or several knots can result in hits well short or frustratingly long from the bull's-eye. Indeed, many pilots know immediately after the fact when they've made a mistake. Some have been known to respond after their run with fury-venting, self-induced raps against their hardhats.

The medium angle loft is similar to the half cuban eight acrobatic maneuver except that it is commenced at near ground level. It's exciting for the pilot because he approaches the target at blurring speed. Referencing the terrain whipping by, he gains a keen sense of how fast 500 knots really is.

The all-weather event tests the pilot's knowledge of the elaborate array of the on-board electronic equipment and also his ability to fly the aircraft totally on instruments. He must make his checkpoints on time, fly the predetermined track with minimum deviation and ultimately release his ordnance on target. Hitting all the checkpoints with precision becomes a somewhat meaningless accomplishment if the bomb release is inaccurate.

Perhaps in no other evolution short of combat operations do the pilots generate as much respect for and reliance on the men in the maintenance force. Rules of the Derby are so strict that, even if a pilot makes a perfect run and the bomb fails to release or the computer "tosses it a country mile," he has no recourse but to accept the resultant low score. The aircraft has to be groomed to peak operating efficiency. And this takes endless hours of preventative and corrective labor. The complete aircraft, from engine to black boxes, has to be thoroughly prepared for the job at hand.

Some rules and format alterations have been made since derby competition began. The November version, for example, permitted squadrons to enter additional pilots in the events. In any case, *Derby VII* was a success.

Captain J. S. Homyak, Commander, Light Attack Wing, Pacific, states that "We have changed and will go on changing the derby each time to make it more viable, more realistic. . . . If we can respond to a given situation quickly, that's what we're after." In addressing those at the awards ceremony marking the conclusion of the week's competition, he added, "You've done well in *Derby VII*."

VA-304 ordnancemen load ammo for Derby VII strafing event.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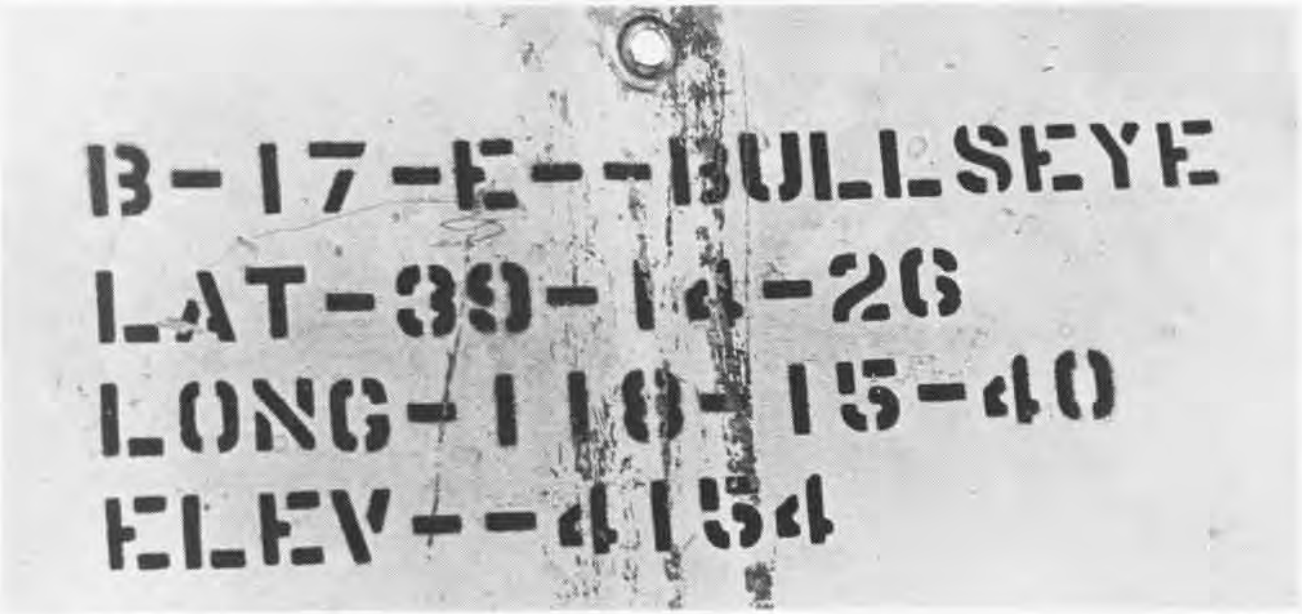
DERBY VII



SQUADRON AWARDS

Golden Bomb — **Attack Squadron 27**

Highest score in visual dive-bombing, strafing, laydown/medium angle deliveries.

Silver Bomb — **Attack Squadron 304**

A-4 or A-7A/B squadron with highest score in visual bombing, strafing, laydown/medium angle deliveries.

Silver Bomb — **Attack Squadron 27**

A-7C/E squadron with highest score in all-weather laydown and visual dive-bombing, strafing and laydown/medium angle deliveries.

Black Bomb — **Attack Squadron 97**

A-7C/E squadron with best overall all-weather weapons system employment in all-weather navigation laydown deliveries.

INDIVIDUAL AWARDS

Golden Bomb — **LCdr. Gary Holmes, VA-303**

Best A-4 or A-7A/B visual attack pilot.

Golden Bomb — **Lt. R. E. Clayton, VA-27**

Best A-7C/E visual attack pilot.

Golden Bomb — **LCdr. Ken Gordon, Jr., VA-122**

Best A-7C/E all-weather attack pilot.

Best visual dive-bomb pilot — **Lt. R. E. Clayton, VA-27**

Best combined visual laydown/medium angle loft pilot — **Lt. Mark Zenner, VA-97**

Opposite, bull's-eye at 17 Echo. Top left, AQs check weapons computer. Above, VA-304 skipper, Cdr. Kirk, briefs flight. Below, AR Cranston Hart works spotting chart while AA Lonzell Harts checks A-7, below left.

AS THE COMPETITORS SEE IT

By Lt. Phillip Kazanjian, USNR

ComLAtWingPac Derby competition has grown in intensity and spirit in the last several years and all indications are that derbies will continue to be feature events at NAS Lemoore.

Commander Bob Coffey, C.O. of VA-97, believes that "The derby has grown in importance because it is run similar to actual combat conditions and higher authority has recognized it as a valid check of proficiency."

Reserve units first participated in *Derby IV* and have generated considerable rivalries with fleet squadrons. Commander Jerry Kirk, skipper of VA-304 and a previous Golden Bomb winner, is particularly pleased with the opportunity to compete and says, "Reserves compare favorably with their active counterparts."

"Reserve squadrons," states VA-146's maintenance officer, LCdr. John Burt, "possess not only a higher level of overall experience, but also a strong desire to compete which is reflected by their high performance level."

VA-303's LCdr. Dick Luker adds that "It's great to compete with the fleet squadrons. The sharing of information and friendly competition promote a mutual understanding of our limitations and abilities that helps us all improve."

Competition under combat conditions is a feature that LCdr. Max Wikes of VA-147 particularly likes. "It brings us up to standards we don't get in normal training. It puts more emphasis on performance."

VA-305's Lt. Bob Hodson considers "the competition between pilots and squadrons experienced in the derby unique and found nowhere else in the service."

Looking to the future, Lt. Jerry Gillen of VA-125 feels "The derby will remain and may even see expansion in peacetime." VA-146's LCdr. Jim Partington relates that he would "like to see expansion of the derby to include Marine squadrons."

Cdr. Coffey thinks that "Wide World of Sports coverage of the derby would be desirable in order to inform the public of the military operation and to afford wider recognition of pilot expertise."

Lt. Mark Zenner, who flies with VA-97, thinks it may now be appropriate to "expand the competition to include East Coast Navy squadrons along with both Air Force and Marine light attack units."

Derby VIII is scheduled for May 1974. It is quite apparent there will be as much excitement and pursuit of excellence in it as were demonstrated during *Derby VII*.

Opposite page, maintenance crew on the job. Above, Golden Bomb winner LCdr. Gary Holmes, VA-303. Lt. Joe Connellan, right, accepts multiple awards for major Derby winner, Attack Squadron 27.

HEL

Built in a new Navy plant in Columbus, Ohio (now Rockwell International's Columbus Division), production deliveries started in late 1942. To increase production, Canadian Car and Foundry and Fairchild of Canada were given production contracts for the *Helldiver* as the SBW and SBF series, respectively.

In November 1943, VB-17 took the SB2C-1 into combat from the *Bunker Hill*. From this time on, *Helldivers* increasingly replaced the *Dauntlesses* on Pacific Fleet carriers. As the improved models, 3s, 4s and 5s, came off the production lines, they successively took over the combat duties, with the 5s just getting into action before the end of the war.

In addition to the carrier *Helldivers*, a land-based version, the A-25A, was built for the Army Air Force. Almost half of these were transferred to the Navy for Marine and Navy training use when the AAF decided dive bombers did not fit into its operations. Two other models which didn't reach production were the XSB2C-2 seaplane and XSB2C-6 with a P&W R-2800 and lengthened fuselage.

Of the 7,139 production *Helldivers* which followed the prototype, the 4Es and 5s continued in service after WW II, used by both fleet and reserve squadrons. While the British did not find their SBW-1s satisfactory during WW II, several foreign air forces found a use for U.S.-provided SB2C-5s in the postwar years.

Not one of WW II's most popular carrier aircraft, the Curtiss SB2C *Helldiver* did finally achieve an effective record in Pacific Carrier Task Force operations. The popular Douglas SBD *Dauntless* dive bomber was a hard act to follow and the early SB2Cs, ordered off the drawing board before Pearl Harbor, weren't up to it. However, after intensive development and improvement, the later models proved themselves in the last year of the war.

From the prototype XSB2C-1 as it first flew on December 18, 1940, the major changes to the overall configuration through the final production SB2C-5 model were a lengthening of the forward fuselage and a considerable increase in the size of the tail surfaces. Design and construction was generally typical of WW II aircraft. The result of a late 1938 Navy design competition, the XSB2C-1 used the then new Wright R-2600 engine. (All production aircraft were to use this engine.) The design required a short length to fit two aircraft on a carrier elevator, and this short length, even with the larger tail surface, was to give the *Helldiver* poor stability characteristics which were never fully corrected.

SB2C-4

SB2C-3

SB2C-5

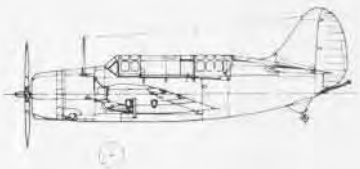
LDIVER

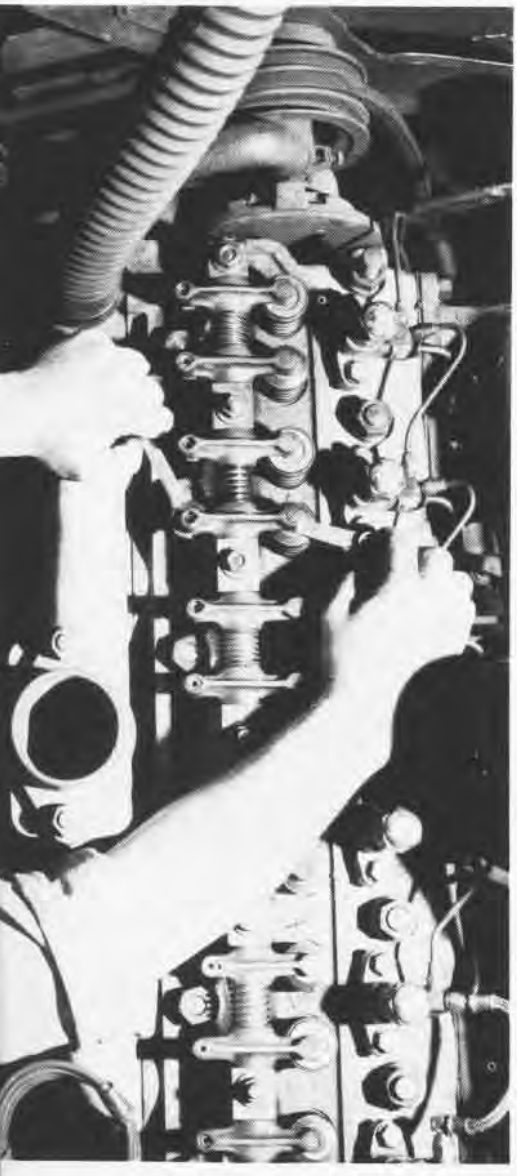
Wing span	49′8⅝″
Length	36′8″
Height	14′9″
Power plant	
SB2C-1 Wright R-2600-8	1,700 hp
SB2C-3, 4, 5 Wright R-2600-20	1,900 hp
Maximum speed	
SB2C-1	281 mph
SB2C-3, 4, 5	295 mph
Service ceiling	
SB2C-1	25,900′
SB2C-3, 4	29,200′
SB2C-5	27,600′
Range	1,420 miles
Crew	pilot and radioman-gunner
Armament	
Fixed guns	
SB2C-1	four .50 machine guns
SB2C-1C, 3, 4, 5	two 20 mm
Flex guns	two .30 machine guns
Bomb bay	up to 2,000-lb. bomb load; or one MK 13 torpedo, partially external
Wings	
SB2C-1	up to two 235-lb depth bombs
SB2C-3, 4	up to two 650-lb depth bombs
SB2C-5	up to two 1,000-lb bombs
SB2C-4, 5	eight 5″ rockets

SB2C-1C

XSB2C-6

XSB2C-2





Surgical team operates on yellow gear

By YN2 Mike Sheeran

Tilly, an aging and overworked 104,000-pound crane, and 1,335 members of her yellow equipment family aboard USS *Kitty Hawk* were afflicted with various ailments ranging from minor skin diseases to potentially crippling illnesses. They needed immediate attention.

Time was of the essence, since the carrier, home-ported at NAS North Island, was scheduled for some "preventive surgery" of her own at the Hunters Point Naval Shipyard in San Francisco. Specialists there would not have time for Tilly and her family.

It was decided to try a new idea, still in its initial testing stages, which had been used successfully in isolated cases. The idea itself, a brainchild of Navy know-how, utilizes cooperation between Regular and Reserve components to diagnose and treat common ailments faster and cheaper than most conventional methods.

Once the decision was made to use Tilly and her relatives to test the new cure, the project took shape in rapid-fire order.

Contact was established between *Kitty Hawk*, at sea at the time, and the San Diego Naval Air Reserve Forces at North Island. It was agreed that a 25-man yellow equipment "surgical team" would be dispatched from *Hawk* the moment the Reserves made the necessary facilities, equipment and personnel available.

The Reserves went to work. When the "operating room" was ready, instruments for the special team were delivered and the equipment began to arrive. Some only needed outpatient care — paint or a replacement set of bolts. Others needed "transplants" — replacement parts.

And then there was Tilly. She was in bad shape. Her paint was chipped, her tires were bald and her engine was feeble. When it was over, Tilly was ready for service.

When the carrier returned from Hunters Point, the new concept in fleet support was a proven remedy. The special project had required 20,000 man-hours. But the high cost of refurbishing yellow equipment had been cut almost in half.

GEMO

Two million dollars' worth of gear and it's all scattered to hell and gone.

Some of it is at MCAS Kaneohe Bay's communications center, some at Kansas Tower, more is holed up in Hangar 105. First Radio Battalion looks after a few pieces, a nice-sized chunk sits on the runway and a lot of it just rides around the base all day.

This seemingly haphazard dispersal is actually the organized chaos of Ground Electronics Maintenance (GEMO). The 25-man unit is charged with the repair and maintenance of a large variety of electronics gear. Equipment GEMO is responsible for can be found anywhere, in the SAR crash boats, in the squadron hangars, and in the commanding general's office.

Operating from a central location, GEMO's multiskilled technicians are called to all parts of the air station.

The headquarters building houses the teletype/crypto section, supply, admin offices, the testing unit and the high frequency (HF) radios. The HF radios are used mainly for transpacific communications, but they have a global range. The sophisticated setup also operates as a backup during Kaneohe Bay-carrier operations. Ship-to-shore communications are handled by Kansas Tower, but GEMO stands ready in case of a radio failure. Radio technicians, all qualified radio operators, man the sets.

The teletype/crypto section has scattered responsibilities. Teletype machines are found in the station's communications center, First Radio Battalion and the air control tower atop Hangar 105. In addition to servicing these machines, the section maintains the cryptography code machines at the communications center and First Radio Battalion.

"Supply is a very big affair down here," says Capt. Harvey Greenawalt, USMC, GEMO's officer-in-charge. "We process over 1,100 documents a month." The supply section orders parts for all the machines. To reduce the sheer volume of the necessary supply manuals, a truckload of documents was microfilmed. And the files still take up quite a few square feet. A testing section contains over 200 devices for pinpointing trouble in the spaghetti circuitry of the various gadgets GEMO repairs.

Ground electronics personnel work day-on, day-off shifts. A technician is on duty at the main building 24 hours a day. Sections that operate night crews can reach him if one of their Marconi marvels breaks down. If the duty tech can't effect the repair, he calls in the expert with the specific know-how. This expert is on 15-minute

By LCpl. C. W. Rowe, Photos by Sgt. E. S. Saylors

Reprinted from Hawaii Marine, *MCAS Kaneohe Bay, Hawaii*

call after normal working hours during his 24-hour shift.

Normal working hours vary at GEMO.

"I have men who put in 90 hours a week," declares Greenawalt. A repair crew recently overhauled the TACAN located in Kansas Tower. That week, they worked from 6:30 a.m. until about 9 p.m. Whenever a necessary piece of gear breaks down, technicians are called in, even if it is very early in the morning. They stay on the job, no matter what the hours, until the transistorized tinkertoy is functioning again.

Navigational aids are a big part of GEMO's responsibility. Again, the technicians don't have a central location. They move back and forth between Kansas Tower, Hangar 105, the GCA complex and their own building. Weather machines in Hangar 105 are another maintenance responsibility.

Communications equipment demands a large slice of time. Ground-to-air radios in Kansas Tower and Hangar 105 are, perhaps, the most important. One problem faced at Kansas Tower is salt corrosion on the radio antenna. Each month the antenna is replaced and the old one cleaned for future use.

Every squadron has an administrative radio net serviced by GEMO. The net is not for air control purposes. It allows squadron and pilot to communicate and more easily settle a variety of problems that can arise any time an aircraft goes aloft.

A little known function of GEMO is maintaining the KY-3 telephone in the brigade commanding general's office. This phone is a secure voice net which provides communications security through a "scrambler."

Ground Electronics has a mobile section which is in the process of moving into the old MP guard shack. This section has headaches just tracking down the equipment it must repair. Crash crew vehicles, MP trucks and SAR crash boats all carry HF mobile radios that must be repaired and checked periodically. These vehicles, however, cannot remain out of service for an extended length of time. The section must also keep up with walkie-talkies that are always in use. Public address systems for changes of command, parades and other special events, such as the recent Little League games, are provided by the mobile section.

Air conditioning that provides an even temperature for delicate circuitry and wiring solves many of GEMO's migraines. When a piece of gear overheats and burns out, it makes quite a mess. Proper cooling in every building where the unit has equipment is a great help. Greenawalt has nothing but praise for Public Works which maintains the temperature controllers.

The station communications center is a small but vital link in Ground Electronics' maintenance network. It has two technicians on permanent duty who watch over the sending/receiving gear that hooks the communications center and Kaneohe Bay into a worldwide, computerized communications system.

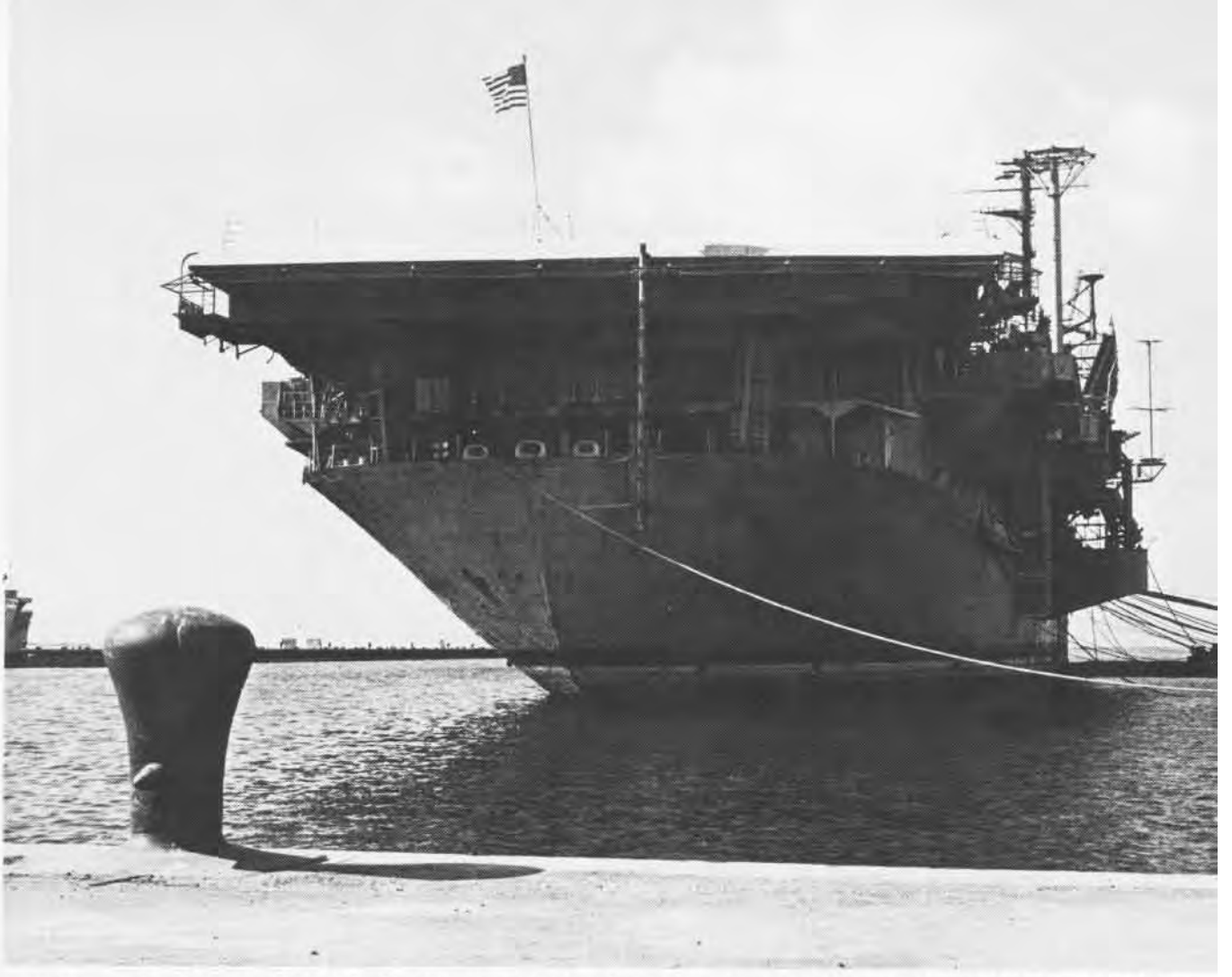
Besides repairing defective equipment, the unit runs regular preventive maintenance on each piece of gear. This is done to minimize repairs which take much longer to accomplish than relatively simple maintenance checks.

The type of gear determines when preventive maintenance is pulled. GEMO runs its preventive maintenance more often than other bases because "every piece of our gear remains switched on 24 hours a day," says Greenawalt. The same is true of overhauls. These are more complicated, but one overhaul can save many repairs.

It's a helter-skelter way of life and an impermanent mode of existence. Technicians do not know how many hours a day they will work, at what improbable time they will be turned out of the rack to answer a priority repair call, or even to which part of the base they will dash when the call comes.

The men of GEMO work in a technically complex and diverse field, but they have a simple purpose — maintain all the communications gear and navigational aids aboard the station.

Kaneohe Bay's 80-foot radio tower provides the power for globe-spanning HF radios, far left. Civilian electronics technician Joe Jicaku and SSgt. Robert Hagewood check a direction finder, left, while Sgt. Neil Josephson repairs a teletype, right. Sgt. Don Zimmer checks the HF radios, far right.



Her name already removed from the fantail, Tico will sit at the San Diego naval station until she is sold for junk this spring.

Ticonderoga Decommissioned

By SCPO J. F. Falk

Photos by PO1 C. Markowski

She sits like a ghost now, moored at NS San Diego. Her spacious hangar deck, which once buzzed with the activity of hundreds of mechanics working to keep their aircraft in top shape, now stands empty. The flight deck that launched a quarter of a million aircraft in war and in peacetime training is quiet. Her engine room, working spaces, berthing and messing areas are buttoned up.

A few weeks ago, *Ticonderoga* was nudged by tugs across San Diego Bay from her berth at NAS North Island to her final home at the naval station. Twenty feet of mast had been cut off so that she could clear the San Diego-Coronado Bay Bridge.

Now, only a handful of the 2,600-man crew was left to witness the final ceremony that struck the once mighty carrier from the rolls on November 16. Before ordering the colors lowered and the watch secured for the last time, Captain George W. Bruce, *Tico's* 32nd and last commanding officer, praised the crew, "Your actions have ensured that this ship which was commissioned in glory will be decommissioned with the honor and dignity that she so justly deserves."

As visitors were guided through the silent hulk two days before decommissioning, Ltjg. Ed Marocco pointed out to them the spot on the flight deck where a kamikaze plane crashed during WW II and where another kamikaze hit the island structure just above the bridge in the same attack. Nearly 150 crewmen were killed that day, but *Ticonderoga* limped into port, her skipper wounded by 65 pieces of shrapnel. She was back out two months later and fought the last five months of the Pacific campaign.

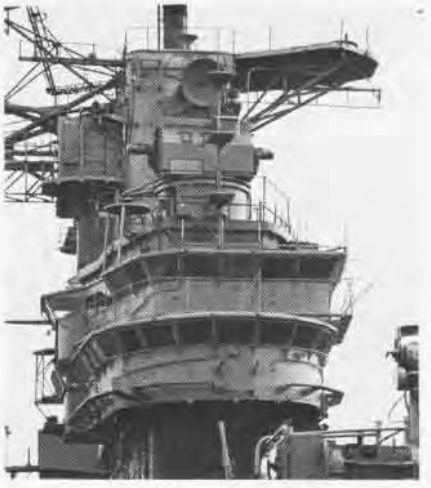
In January 1947, *Tico* was retired but came out of retirement in 1952 to begin a two-year conversion period. Assigned briefly to the Atlantic Fleet, she rejoined the Pacific Fleet and later made seven combat cruises to SEAsia. During her last two cruises, *Ticonderoga* deployed with her designation changed from attack aircraft carrier to antisubmarine aircraft carrier. Ltjg. Marocco was aboard for the last cruise when *Tico* joined in the mining of North Vietnamese ports and harbors. He was aboard too for the *Apollo 16* and *17* astronaut recoveries and for the recovery of the first *Skylab* astronauts. The lieutenant spoke affectionately of the carrier. "You hate to say goodbye to a ship that has built up a history like this one has."

For her part in the Vietnam conflict, *Ticonderoga* was awarded three Navy Unit Commendations and a Meritorious Unit Commendation.

Eighteen other *Essex*-class carriers have already shared *Tico's* fate and another sister ship, *Intrepid*, awaits her decommissioning at Quonset Point, R.I. Twenty-three *Essex*-class carriers were launched between 1942 and 1945 to form the backbone of the American fast carrier striking force. Of these, only three remain on active duty. *Hancock* and *Oriskany* are serving with the Pacific Fleet and *Lexington* is a training ship for aviators.

The hangar deck that once buzzed with activity is now silent.

The last quarterdeck watch maintains a lonely vigil.

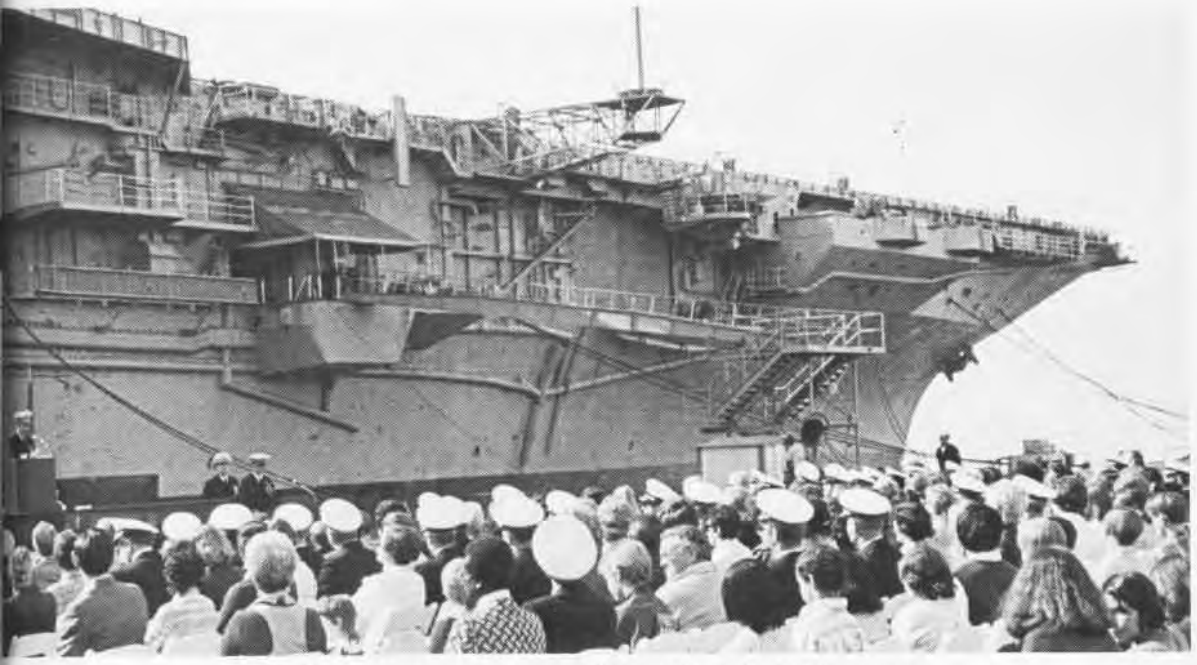


Her bridge is sealed.

Tico's crane hoisted aboard the space capsules from Apollos 16 and 17 and Skylab I when she served as primary recovery ship.

Locks secure hatches to inner spaces.

An antiquated five-inch gun stands as a silent sentry.



A ceremony marks the end of the gallant ship's 29-year career.

30 YEARS... AND COUNTING

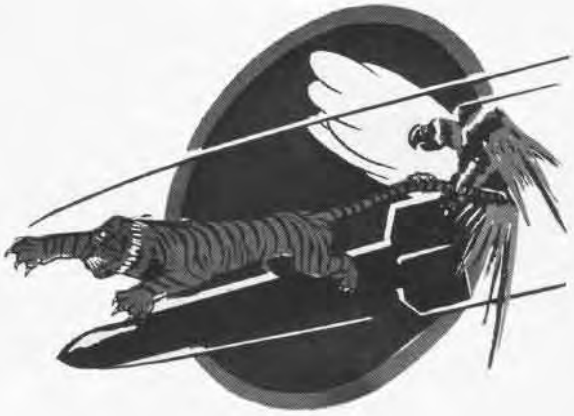
The *Dambusters* of Lemoore-based VA-195 celebrated their 30th anniversary last November, striking another milestone in an eventful history which has spanned three wars. The squadron's combat achievements have made its members, past and present, proud participants in service to the Navy and the United States.

Commissioned as VT-19 on August 15, 1943, at NAAS Los Alamitos, Calif., the unit saw action in the Battle for Leyte Gulf and during the landings on Guam, Palau, Morotai and Leyte. As part of CVG-19, it also supported strikes on the Caroline Islands, Philippines, Bonin Islands, Okinawa and Formosa. In this and later periods, the squadron operated TBF/TBMs, SBDs and even the SNJ.

VT-19 became VA-20A on November 15, 1946, and was redesignated VA-195 on August 24, 1948. The *Dambusters* earned their name flying AD *Skyraiders* in the Korean War. Squadron pilots were instrumental in the destruction of the strategic Hwachon Dam by virtue of highly accurate bombing with aerial torpedoes.

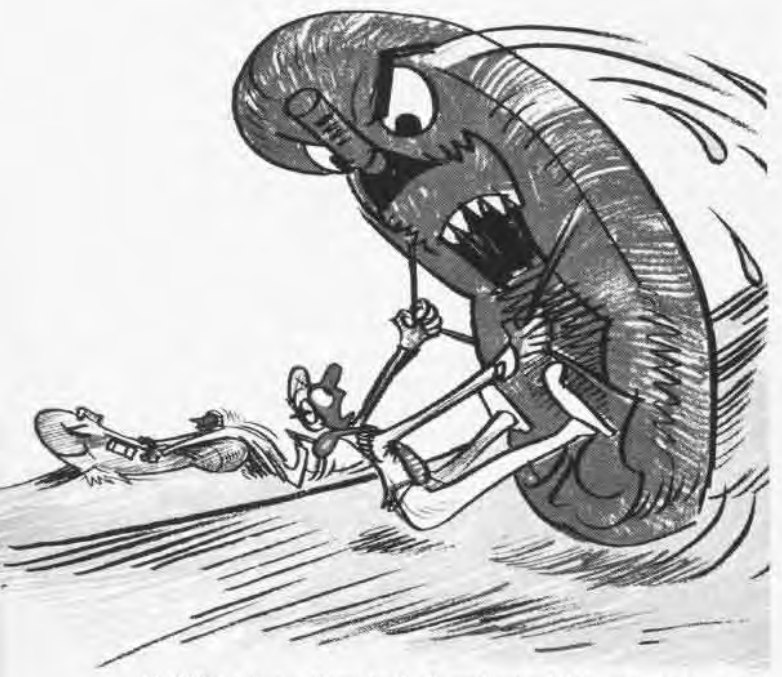
VA-195 switched from recips to jets in 1959 when it began flying the A4D *Skyhawk*. In 1970, it received the *Corsair II* which it now flies. The *Dambusters* were the recipients of the first A-7Es in CVW-11 and the first squadron to fly the E model in combat over North Vietnam following the bombing halt of 1968.

The *Dambusters* remain active and are currently deployed aboard USS *Kitty Hawk* making their punch felt under the CV concept.



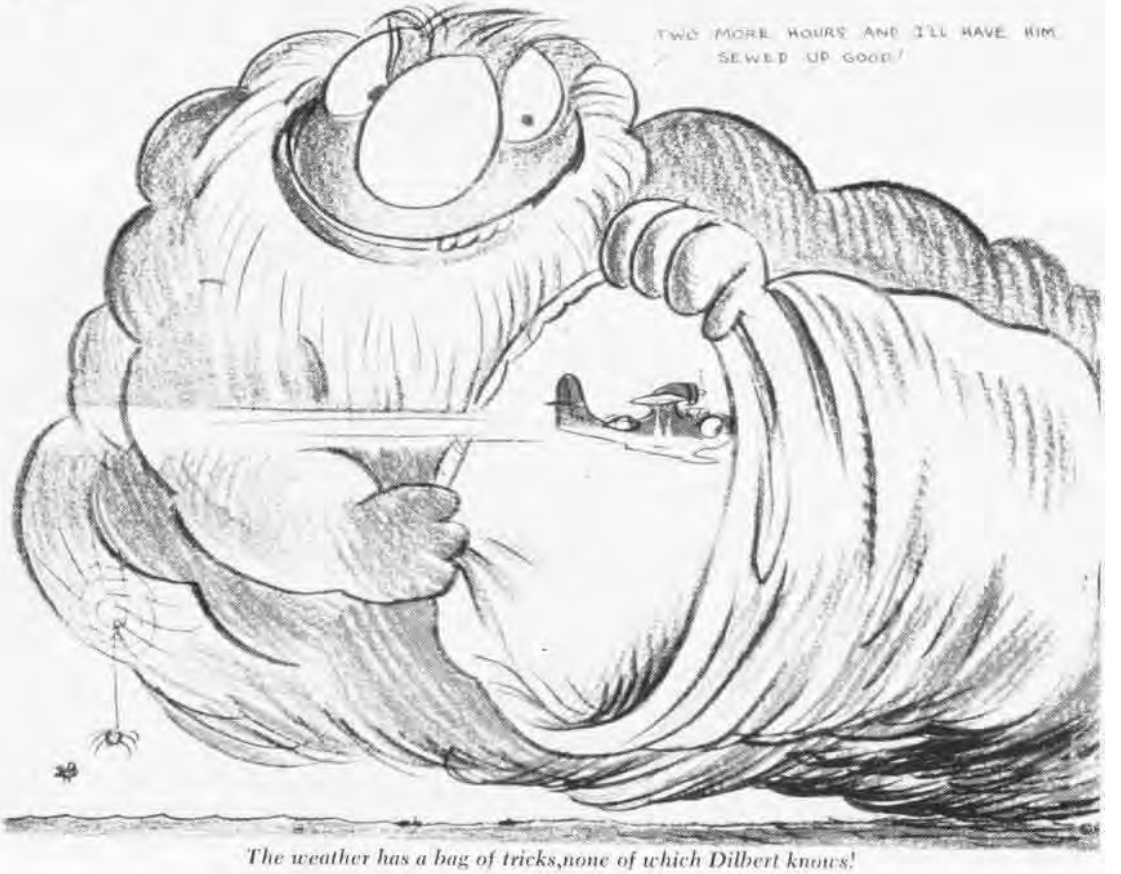
Top, current squadron insignia and older version. Opposite, Dambusters currently fly A-7Es. Lower left, VA-195 Skyraider launches from USS Princeton (CV-23) in 1952 with bombs and kitchen sink destined for Korean targets. Right, in earlier years, squadron operated Grumman Avengers.

DILBERT



If Dilbert knew how to kick and crawl his way onto a raft, he'd be doing much better.

How to avoid trouble! Keep looking!



The weather has a bag of tricks,none of which Dilbert knows!

Spoiler didn't know that good ordnancemen do their work with their hands and by touch.

Spoiler didn't realize that hangar doors sometimes close.

Every prop is a live prop.

Spoiler preferred to make his own platform.

SPOILER

STORMFURY

By Commander Neil F. O'Connor

Bad weather has always been a foe of naval operations. Cougars on flight deck of Coral Sea are drenched by turbulent waters, above. USS Pittsburgh (CA-72) lost her bow during July 1945 typhoon, opposite.

Last fall, for the first time since 1962, fleet aircraft were not standing by to fly out over the Atlantic on an assignment that would have brought cheers from Mark Twain. At least we tried to do something about the weather with Project *Stormfury*. A minimally heralded 11-year scientific effort that hoped to tame the awesome powers of the hurricane, *Stormfury* was an interdepartmental endeavor that joined the resources and technical abilities of the Department of Defense, the National Oceanic and Atmospheric Agency, the Department of Commerce and the Department of Transportation's Federal Aviation Administration.

The object of *Stormfury* was to attempt to redistribute the energies of hurricanes and tropical storms by dropping canisters of silver iodide high in the storm from aircraft. The chemicals, dispersed as the containers fall earthward, attract supercooled water droplets during their descent and transform the water into tiny ice crystals. Through this elementary physical process, heat energy is converted at a rate of 80 calories of heat for every gram of water converted to ice. The freezing process releases latent heat of fusion which raises cloud temperatures. This heating, if in sufficient quantities, could reduce the atmospheric pressure differences in a storm to such an extent that maximum winds associated with the storm's center could be significantly diminished by spreading the energy over a larger area. This is what *Stormfury* attempted to do.

When discussing tropical storms and hurricanes, it is helpful to have an idea of the tremendous energies involved. For example, the 1946 underwater nuclear detonation at Bikini Atoll was estimated to have lifted 10 million tons of water. A full-blown hurricane, in contrast, has been computed as lifting 25 million tons of water vapor per second — approximately 2,000 times greater than the atomic bomb — over a 24-hour period.

The hurricane is a special type of windstorm, a major threat to mariners, and to residents and property along coastal areas. As far as unit area is concerned, the hurricane is not the most devastating storm in Mother Nature's arsenal. That dubious distinction belongs to the tornado. This whirling, concentrated cone of fury averages only 300 to 400 yards in diameter, while the tropical storm spreads over several hundred miles. The hurricane's 100 to 150-mile-per-hour winds are mere zephyrs compared to the 500-mile-per-hour winds of the tornado. But the hurricanes cause the greatest number of deaths and property damage. Even the hurricane's name, from the Spanish *huracán*, means "big wind." The terms hurricane and typhoon are synonymous; the only difference is the geographical area. Hurricanes are found in the Atlantic and Eastern Pacific, typhoons in the Western Pacific.

Most Navy men who have experienced heavy weather at sea have well-founded respect for, as well as distrust of, tropical storms. Besides tumultuous seas, their gusts of wind can deliver staggering blows to structures at sea and ashore. These hammering forces range from 25 to 50 pounds per square foot, perhaps even higher, depending upon the shape of the distressed form and the intensity of the wind. But, also, those winds develop both a positive and a negative force. On the windward side, the positive action pushes in against a structure; on the leeward side, there is a pulling or suction force. The combination can quickly reduce a less-than-substantial building to a pile of worthless rubble.

The full fury of the tropical storm, as far as the Navy is concerned, is probably best illustrated by the tragic incident of December 1944, involving Task Force 38 off the Philippines. As Hanson W. Baldwin, military correspondent for the *New York Times*, wrote, "In 500 years of naval history, there has been no wind like it." When the typhoon struck, some 90 ships of the task force were spread out over an area of 3,000 square miles of the Pacific. Due to a multitude of factors, the flotilla was not ready for the rapidly developing storm. Many of the ships, low in ballast, were preparing for refueling; few had made provisions for the onslaught.

The destroyers bore the brunt of the savage gales as the seas literally exploded beneath them. With only 15 percent of her fuel remaining, rudder jammed, and winds tearing the seas with gusts as high as 130 miles per hour, the destroyer *Spence* began to take on water, rolled precariously to port, painfully righted herself, shuddered, rolled over and sank. Another destroyer, the *Monaghan*, also succumbed to the violence of the Pacific.

When the full fury of the storm finally abated, 790 men, 3 destroyers and 146 aircraft had been lost. Eighteen other ships of the task force suffered major damage and required extensive repairs before they could be put back on the line.

As if to make certain that her message was heard and understood, six

months later, Mother Nature took another swipe at the Third Fleet. In that particular storm in June 1945, while U.S. combat units were battling for Okinawa, the cruiser USS *Pittsburgh* lost her bow.

In 1960, when the concept of *Stormfury* was being given serious consideration, the Navy enthusiastically embarked on the project. The agonies of the WW II typhoon experiences in the Pacific may very well have tempered the decision to support the program. During the life of the project, many elements of the fleet participated, some actually, others just standing by. Included in the organizations that were involved were the Naval Weather Service Command, Naval Air Systems Command, Naval Weapons Center, China Lake and Weather Reconnaissance Squadron Four. Other fleet components involved were Attack Squadrons 35, 75 and 176; Heavy and Light Photographic Squadrons 62; Heavy Attack Squadron 9; and Marine Air Group 14. The activities brought a wide range of aircraft to the *Stormfury* forces. The Navy provided EC and WC-121s, A and RA-3Bs, A-6s, F-8s and WP-3As (flying alongside NOAA's DC-6s and W-57s). The Air Force provided WB-47s and WC-130As. Considerable credit must be given to the planners and controllers who orchestrated the complex battle plan against Mother Nature. Not one major accident blemished the 11-year record of the operation, although the potential danger of flying into a hurricane was always present. The lingering memory remained of the downing of a *Hurricane Hunter*'s P2V during the reconnaissance of Hurricane *Janet* in 1955. (Nine crewmen and two Canadian journalists were lost on that flight.)

Although Project *Stormfury* was officially established in 1962, the agreement was preceded by cautious preliminary seeding experiments on Hurricane *Esther* in 1961: a section of the eye-wall cloud at the center of the storm was seeded with particles of silver iodide. The seeded portion of the cloud faded from the radarscope of the monitoring aircraft, indicating either a change within the cloud of liquid water to ice crystals or the replacement of large rain droplets by much smaller ones.

It was the Navy-developed silver iodide generators that were used on Hurricane *Esther*. These devices used for seeding were developed and manufactured by the Naval Ordnance Test Station, now the Naval Weapons Center, China Lake. The original Navy canisters were designed to be carried in the bomb bay of the A-3 and to spread a vertical curtain of freezing nucleants from 36,000 to nearly 20,000 feet when dropped. These early pyrotechnic generators were eight inches in diameter, 36 inches long and weighed 130 pounds. In contrast, the current devices being manufactured at China Lake are only six inches long, less than two inches in diameter and weigh less than a pound. Although similar in composition, the smaller models are much more efficient than the earlier generators and contain many advanced safety features. The units have a pressure-relief bore safety and time-delay functions that permit them to be certified for general use in most operational Navy aircraft in the existing pyrotechnic racks. Throughout the life of *Stormfury*, NWC remained in the vanguard in the development of silver iodide generators.

With the ink hardly dry on the interdepartmental *Stormfury* agreement, and with every indication of a success as a result of the previous year's operation against Hurricane *Esther*, the forces of *Stormfury* geared up for the 1962 hurricane season. It was on September 29 that a developing storm first appeared on the horizon, just to the east of the Lesser Antilles. Storm warning signals were being raised in the Caribbean. By October 3, *Stormfury* personnel, on very short notice, headed for Miami from such widely spaced points as Washington, China Lake, Norfolk and Puerto Rico. (The occurrences of the following days were

indicative of the frustrations that *Stormfury* was to encounter while trying to play tricks on Mother Nature.)

On October 4, the storm, now called *Daisy*, reached hurricane proportions and appeared to be a perfect candidate for *Stormfury* cloud seeding. A well defined wall cloud surrounded the eye of the storm and conditions appeared optimum to carry out the mission the following day. Under cover of darkness, *Daisy*, with an apparent display of feminine whim, abruptly changed her westward course to a more northerly direction. Her intensity diminished and her eye actually disappeared, perhaps in a provocative wink. *Stormfury* aircraft conducted extensive reconnaissance of *Daisy* during the morning and early afternoon, but cloud seeding was not attempted. By late afternoon, when the aircraft capability to monitor a seeding operation had been exhausted, the central pressure, the real pulse of a storm, began to fall. By the end of the day, the pressure had dropped a remarkable 20 millibars and the seas were again churning white as the winds gradually increased in intensity. That evening, *Daisy* dropped her masquerade and returned to a full-blown hurricane. Although she was not seeded, the operating plan had been carried out effectively. The observa-

An aerial view of Hurricane Connie, opposite. Circular cloud formation at right indicates the center of the storm; dark oblong area is another disturbance resembling the eye. Huge waves roll up the side of USS Yorktown during Typhoon Ruby in 1954, above.

tions were encouraging, considering the logistics involved, and the intricate flight patterns that had been set up — from altitudes of one to sixty thousand feet over several thousand square miles of ocean.

It is likely that many of the *Daisy* participants came away with the feeling that maybe Mother Nature suspected that the *Stormfury* force was trying to play tricks on her.

In 1963, *Stormfury* gained a considerable measure of success against Hurricane *Beulah*. The eye wall was seeded on two successive days and detailed before-and-after pictures of *Beulah's* circulation, structure and radar cloud patterns were obtained. Shortly after the clouds in the storm were seeded, pressure in the eye began to rise and the area of maximum winds slowly drifted away from the center. Although these results were found to be an indicator that *Stormfury* was making progress, the actual samplings were too small to allow definitive scientific conclusions.

The project managers were frustrated through the next five hurricane seasons by uncooperative storms. In 1968 new ground rules were established and it was thought that, as a result, a few more likely candidates for *Stormfury* experiments might become available. The new ground rules expanded seeding areas to include a portion of the Caribbean and Gulf of Mexico in addition to the previously monitored Atlantic Ocean. Until 1967, *Stormfury* scientists had to be satisfied to operate in a region within the Atlantic from which no hurricane on record had ever struck a highly populated coastal area within 36 hours after passing through the zone. This restriction reduced the number of likely storms for seeding to about one a year. There had been no storms qualified for seeding in the prescribed area during the 1965 or 1966 hurricane season.

The expansion of the operational area was made possible by improved hurricane forecast accuracy, particularly improved techniques for predicting hurricane motion. Tropical storms were considered eligible for experiments only when there was a ten percent or less probability that the hurricane center would come within 50 miles of a populated area during the following 24 hours. One of the basic reasons for these cautious restraints is that the effects of cloud seeding would normally disappear in less than 24 hours. This would provide sufficient time to measure the seeding effects before the storm passed over land. The hurricane gains energy from the surface over which it travels but, when it passes over land, the entire structure of the storm is altered and it is ultimately destroyed.

Even with the new expanded guidelines, Mother Nature just did not see fit to cooperate with *Stormfury* scientists although she certainly had everyone believing that she would. The 1968 hurricane season began rather spectacularly. By the end of June, two hurricanes and one tropical storm had swept out of the Gulf of Mexico and the western Caribbean — but none could be seeded. Then came the drought! Not one storm developed during July and tropical storm activity for August and September was far below seasonal averages. No storms touched the mainland U.S. in September, the first time that had happened since 1942. Even so, *Stormfury* forces waited. From August 5 to October 15, project scientists and aircraft and their crews were on 48-hour alert — just in the event a hurricane that happened to fill all the prerequisites might pass by. As it turned out, *Gladys* was the final hurricane of the season and she didn't appear until the very end of the availability period of *Stormfury* forces. *Gladys* was not seeded! She caused five deaths and $7 million in damage. Thus Mother Nature thwarted the *Stormfury* group again.

At least in contrast, 1969 was a banner year, providing *Debbie*, the first storm to be seeded since 1963 as well as the first opportunity to seed more than once. She was seeded ten different times in an all-out attack during two separate eight-hour periods. On August 18, while still some 650 miles east of Puerto Rico, *Debbie* was angrily sweeping seas and skies with winds in excess of 100 miles per hour when *Stormfury* aircraft appeared overhead. The seeders penetrated the circulation of the massive storm at an altitude of 33,000 feet and entered the area of maximum winds before beginning actual seeding. The runs, which lasted only two to three minutes each, sowed a 15 to 20-mile-long carpet of silver iodide onto the storm below. Before

the seeding experiment began, the maximum winds at 12,000 feet were measured by the Doppler radar of an observing aircraft at 98 knots. Five hours after the fifth seeding, the winds had dropped to a respectable 68 knots. On August 20, the maximum wind speeds before the first seeding were 99 knots. Within six hours after the fifth seeding, they had decreased 15 percent to 84 knots. The advocates of *Stormfury* were greatly heartened.

An analysis of previous storms indicates that the August 18 experiment results, where the winds dropped so markedly, probably would not have occurred in an unseeded environment. The fact that *Debbie's* winds were reduced again on the 20th strongly suggests that some of the observed changes were induced as a result of the seeding. The *Debbie* experiments were probably the most promising of all those made during the entire history of *Stormfury*.

Although 1970 yielded no candidate for experimentation, 1971 did provide *Ginger*. Besides her availability for seeding operations, *Ginger* broke all records, existing longer than any other Atlantic hurricane on record, although there is no established relationship, or even suspicion that her longevity was related to seeding. Her 20 days of hurricane-intensity winds made her a celebrity. Because of her persistence, *Stormfury* forces were given an unprecedented opportunity to carry out various experiments. Although *Ginger* was a rather large and diffuse storm, she was not really suitable for the type of seeding experiments that had been previously performed, but the project scientists were able to conduct an operation called a rain-sector experiment. The object of this effort was to force the clouds to grow through the application of discrete seeding. The intent was to cut off the inflow of air which acts to feed the overall storm itself, much as a fuel line feeds gasoline from the gas tank to the carburetor of an automobile. Seeding was conducted on September 26 and 28. The winds were already increasing on the 26th when the seeding began and they continued to increase after seeding had been completed. However, on the 28th, the maximum winds observed dropped from 90 to 79 miles per hour. Again, unfortunately, nothing conclusive was gained from the operation although *Ginger* did provide a great deal of research material.

The story of the 1972 hurricane season was absolutely unique; for the *Stormfury* group, absolutely frustrating. There were only three hurricanes during the entire season, the quietest hurricane season in 42 years. Not one of the three was acceptable for *Stormfury* experiments. Not since 1930, which is, coincidentally, noted as a period of austere fiscal policy, had the hurricane season been so mild. Mother Nature chalked up another for her side, but showed she is a master of timing.

The *Stormfury* planners, because of the lack of eligible Atlantic seeding candidates, recognized that they were behind the power curve and that the chances to display what *Stormfury* could do were rather minimal. They studied the feasibility of moving to the Pacific, where 15 to 20 typhoons a year are not uncommon, but the move was never made.

Opposite page, an Air Force WC-130 Hercules (left) and a WP-3A Orion of VW-4 participated in the Stormfury experiments. The destroyer USS Parsons (DD-949) rides out a typhoon in the South China Sea in 1964, left. Calm seas are welcomed by all sailors, above.

Letters

Yellow Peril

The August issue of the usually correct *Naval Aviation News* has an error which has filtered down through the ages in journalistic circles. On page 38 the Stearman N2S is referred to as the "famed *Yellow Peril*." This trainer is famed but the equally famed N3N trainer built by the Naval Aircraft Factory, Philadelphia, Pa., is the authentic *Yellow Peril*. I quote from *United States Naval Aviation 1910-1970* (NavAir 00-80P-1), "The XN3N-1, prototype of the *Yellow Peril* primary trainer, was ordered from the Naval Aircraft Factory."

The N3Ns led the parade for primary training of Naval Aviators and was affectionately dubbed the *Yellow Peril*. As the production manufacture of these airplanes was phased out, the N2S gradually took over and through subsequent passage of stories and journalistic whimsy, it erroneously has been referred to as the *Yellow Peril*.

Because of my pride in the many accomplishments of the Naval Aircraft Factory and the fact that the NAF had no publicity department, I felt obliged to call your attention to this unintentional error. I do hope in some way your publication will give the N3N *Yellow Peril* its just due.

Karl H. White, A.E. (Retired)
Former Chief Design Engineer, NAF
144 K Street
Seaside Park, N.J. 08752

¶ Navy primary trainers, in their all-yellow paint jobs, became known over the years as "yellow perils." When official names were assigned in 1941, the NAF-designed and manufactured N3N became the *Yellow Peril*.

Mining

In the article entitled "Command Histories" in the August 1973 issue of your magazine, I was interested in the reference to a Navy office preparing a critique of the naval air mining in Vietnam. The Mine Warfare Project Office (PM-19), working closely with the Mine Warfare Office in OpNav (Op-325), is the office interested.

If any of your readers have pictures of the mining operations or interesting personal observations or anecdotes from having participated in any phase of the mining, PM-19 would like to hear from them. The critique referred to in the August issue is part of a history and analysis of mine warfare ops in SEAsia being prepared by PM-19 under the sponsorship of the Director of Surface Warfare (Op-03) in CNO.

Direct all correspondence to Project Manager, Mine Warfare Project (PM-19), Naval Ship Systems Command, Washington, D.C. 20362.

J. J. Strohm, Capt.
Project Manager PM-19

Intrepidmen

USS *Intrepid* (CVS-11) is scheduled to be decommissioned on March 15 at NAS Quonset Point, R.I. A limited number of decommissioning ceremony invitations are available. Anyone interested in attending should write: Inactivation Committee, USS Intrepid (CVS-11), NAS Quonset Point, R.I. 02819.

A limited number of one and one-half inch commemorative coins are also available. Send $3.00 check or money order to: Cdr. C. P. Smith, Weapons Department, USS Intrepid (CVS-11), NAS Quonset Point, R.I.

Technical Consultant Hal Andrews is documenting the technical and operational history of the SB2C *Helldiver* as a project for the National Air and Space Museum which has an SB2C-5 in its WW II naval aircraft collection. He would like very much to hear from readers who can contribute their recollections or loan material for reproduction that could assist in the project. Of interest are all aspects of development, Navy and Marine Corps service, and the delivery of and introduction of aircraft to foreign air forces, including Italy, Greece, Portugal and France. Hal can be reached c/o *NANews*.

XSB2C-1, first of the SB2C *Helldivers*

Beached Destroyer

I am conducting some preliminary research on the remains of a destroyer beached in San Francisco Bay. Perhaps some of your readers can shed some light on this hulk.

Based on information I have been able to garner to date, the vessel was towed into the mud early in WW II for use as a practice bombing target by planes from Moffett Field and possibly other airfields in the area. The hulk is clearly visible above water and is shown in Nautical Chart 165-SC, published by the Department of Commerce, at latitude 37 33'N and longitude 122 09'W.

If any of your readers are familiar with this hulk, I would appreciate learning its name, when it was towed into the mud, for what purpose and by whom, where it came from, whether subsequent salvage efforts were made, etc.

Anyone in the Bay Area with information on the hulk may call me collect at 415-829-0180 or write me.

W. H. Langenberg, Capt., USNR
6990 Village Parkway
Dublin, Calif. 94566

Oops

On page 27 of the November 1973 issue of *NANews*, we reported that the Dental Corps recently observed its 60th anniversary. In fact, the Dental Corps' 60th anniversary was marked in 1972.

Naval Aviation Films

The following motion picture films are among the latest released by the Film Distribution Division, U.S. Naval Photographic Center.

MN-10932H (unclassified) *Electromagnetic Compatibility — ECM Program Consideration* (25 minutes).

MN-10943A (unclassified) *Carrier Flight Deck Operating Procedures* (Revision of MN-10943). Basic procedures for A-7 pilots making carrier qualification landings. Standard practices and some problems encountered on or around the ship (25 minutes).

MN-11070B (unclassified) *Aircrew Rescue Procedures — TA-4F/J.* Features to look for and danger areas to avoid when carrying out rescue operations in the TA-4F/J (20 minutes).

MN-8270A1 (unclassified) *Aircraft Accident Investigation.* Procedures for investigating an aircraft accident (43 minutes).

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

VP45

Patrol Squadron 45 was comsioned at NAS Norfolk, Va., in 1942 as VP-205 and flew PBMs during WW II. Now based at NAS Jacksonville, Fla., under the operational control of Commander, Patrol Wing 11, VP-45 flies the Navy's most advanced Orion, the P-3C, in support of Atlantic Fleet ASW operations. The squadron is led by Cdr. J. M. Notargiacomo.


ARE YOU ON YOUR WAY UP?
NAVAL AVIATION
NEWS
See your Navy or Marine Recruiter about
a career which can take you to the top.