40th Year of Publication

DECEMBER 1958

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UNDER . . . OR OVER . . . AND . . . OUT!

Seeking ways to save the lives of pilots who must eject on takeoff, landing, or even after a crash in water, the Air Crew Equipment Lab at Philadelphia runs repeated tests and keeps an ear tuned to what commercial companies are doing to make ejection equipment better. End goal is to reach the day when crew survival will be guaranteed though aircraft may be lost. Above, an underwater ejection chamber; at left, 150-foot test tower, believed world's highest.

NAVAL AVIATION NEWS

OUR FORTIETH YEAR OF CONTINUOUS PUBLICATION, DECEMBER 1958

VAH-3 Skywarrior Travels
Covers North American RBS Sites

Heavy Attack Squadron Three claims to have the first carrier-type aircraft to make runs on all Radar Bomb Scoring sites in North America. In 30 hours of flying time one A3D, piloted by Cdr. Sid Barney, covered all of them. His crew was Robert S. McNeill, AOC, Glen A. Limbert, AD3, and plane captain Charles Keefe, AD1.

RBS sites are located in major cities throughout North America. All are operated by the Air Force except the Jacksonville site which is run by a Detachment of FASron 51. Buildings and structures are designated targets. As a plane makes a run, ground radar tracks it until it releases a mythical bomb. The score is computed and radioed to the aircraft.

The VAH-3 *Skywarrior* in 48 attacks scored 29 times. Capt. James D. Ramage, Commander Heavy Attack Wing One, extended a "well done" to all hands of VAH-3 for their efforts in making the mission a success.

The flight, conducted under simulated wartime conditions, provided good teamwork training for the crew.

Survival Kit Designed
Holds 36 Items, Fits in Pocket

An ingenious plastic survival kit, measuring four by seven inches and containing more than three dozen items which a pilot could use if he were forced down at sea or in a remote spot on land, has been designed by 1st Lt. R. J. Milicevich of Marine Helicopter Reconnaissance Squadron 363.

The kit is designed to be carried in the pocket of a standard flight suit and will soon be carried by all pilots of HMR(C)-363. Plans call for all flight personnel to be equipped with the kit as soon as procurement of the various items for the kits has been completed.

The kit will be used in addition to any survival gear included in the standard life raft ensembles.

Lt. Milicevich worked several months on the project. Realizing the need for some type of survival equipment, particularly if a pilot is forced down in a mountainous or remote area, he began writing companies who manufacture gum, cigarettes, razor blades and other similar items.

To begin with, he used his own money to cover the necessary expenses, but now each pilot will contribute $1.50 to a fund from which the kits will be made up and issued. Most companies donated complimentary shipments of their products when they learned of the project.

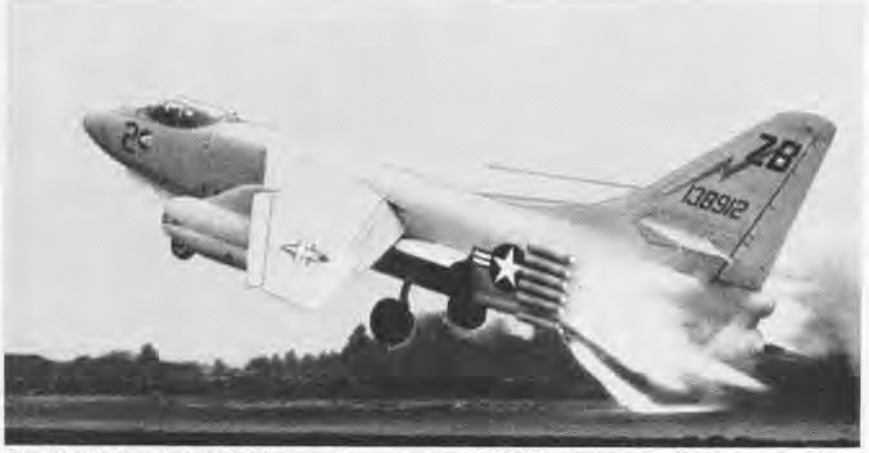
Kits will become the pilots' property while in the squadron. Their names will be painted on their own kit.

The list of items included in the survival kit are: a chocolate bar, six .38 caliber cartridges, a gauze pad, fish hooks, sinkers, lines, water purification tablets, iodine, pins and needles, a bar of soap, a small package of cigarettes, a pack of waterproofed matches in a vial, a honing stone, knife-scissors combination, a 12-item tool kit, powdered soap, a metal mirror, a vial with APC, vitamin and salt tablets, sandpaper, chewing gum, tooth brush and paste, candles, fish fly, two small coils of wire, anti-chapping stick for the lips, band aids, chamois cloth, absorbent cotton, fish lures, salt and pepper.

Ryan Gets Navy Contract
Award for Radar Navigation Gear

Ryan Aeronautical Company of San Diego, California, has been awarded a contract of more than $20 million to furnish automatic radar navigation equipment for Navy aircraft.

Designated APN-122(V), it is an all-weather airborne ground velocity indicator which uses continuous-wave Doppler radar. Automatically, continuously and accurately, it computes and displays ground speed and drift angle without the aid of ground stations, wind estimates or true air speed. Thus, pilots can reach their destinations with certainty without time-consuming manual computations.



IT'S ALL DONE *with JATO! Using a dozen Aerojet JATO (Jet Assist Take Off) bottles, a 35-ton Skywarrior took off from less than the length of a football field in under four seconds from brake-release. This means the A3D can be launched from a carrier without aid of a catapult.*

THE JET AGE *was pitted against the age of stage as the Post Office Department celebrated the centennial of its overland mail service this fall. This A3D Skywarrior flew from San Francisco to St. Louis, following the old stage route, with 1400 pounds of philatelic mail in two hours, 58 minutes. Stage in foreground would have taken 24 days to perform same feat a century ago. The A3D pilot was sworn in as a temporary mail messenger by the Post Office.*

SeaMaster Engines Tested

Specially Designed Stand is Used

A YP6M-1 *SeaMaster* has been put through a series of tests at NATC PATUXENT RIVER to measure the total thrust of her four engines. Results of the test were not released.

A problem such as the *SeaMaster* poses has never before arisen because of the essential difference between jet-power and propellers.

To find the total horsepower rating of a multi-engine, prop-driven plane it is only necessary to multiply the horsepower of each engine by their total number.

Problems evoked by the *SeaMaster* arose through the tandem arrangement of the engines, mounted in close-coupled pairs on top of each wing.

Engines thus mounted are in essence "stealing" air from each other. Therefore the thrust of two united engines is not equal to the combined thrust of two separately mounted engines.

Powered by four Allison J-71 jets (with afterburners), the P6M-1 was so powerful that no anchor could hold her. A thrust stand designed by John B. Paradis, aeronautical engineer assigned to Flight Test, was the only installation strong enough to test the muscles of the new jet-age seaplane. The installation can withstand a pull of 100,000 pounds.

The stand consists of a braced I-beam buried in concrete, on which a heavy-duty spring gauge unit is mounted. With the stand at one end of a cable and the aircraft at the other end, testing is simple. Attached to the gauge, a 1750-foot, 1⅛-inch steel cable was laid out to the plane, supported by empty mine cases 30 feet apart to be used as buoys.

The buoys take advantage of the fact that water acts like air—floating the cable eliminates friction—thus removing drag factor in the problem.

The line was towed out by an LCM and made fast to a bridle arrangement of one-inch cable attached to the stern of the *SeaMaster*. The plane was then towed to her final position by a 45 horsepower line handling boat. Then her engines were turned up for the test.

Camera Developed by NOL

Permits 24 Recordings at a Time

A multi-channel camera developed at the Naval Ordnance Laboratory permits simultaneous recording of data from 24 points on a missile model in a shock tube wind tunnel.

The new camera records temperature and pressure information in microseconds from oscilloscopes connected to probes on the model while it is being tested in the hypersonic tunnel.

Simultaneous measurements are needed to insure that all test points are tested under identical conditions.

APL Awarded New Contract

Bumblebee Studies Will Continue

A $17.6-million contract has been awarded the Applied Physics Laboratory of the Johns Hopkins University for continuation of the development of guided missiles, guided missile systems and related equipment associated with the *Bumblebee* program.

The Applied Physics Laboratory of Johns Hopkins has been conducting the *Bumblebee* program for the Navy during the past 13 years. The program was established in 1944 to find an improved air defense system against Japanese *kamikaze* attacks on U. S. ships.

Three anti-aircraft missiles have been developed under the *Bumblebee* program—*Terrier*, *Talos* and *Tartar*.

FIRST JET CARQUALS *in history of Naval Air Basic Training Command were conducted aboard USS Antietam (CVS-36) using T2V-1 SeaStars. Pace setting operation took place in Gulf of Mexico off Pensacola. During 22 weeks of intensive instruction, qualifying students attached to Basic Training Group Nine are given more than 100 hours in the SeaStar prior to going aboard Antietam, which holds a "first" in her own right. She was the world's first angled deck carrier.*

NEW ASW GROUPS ARE FORMED

TWO ADDITIONAL antisubmarine defense groups, designated Bravo and Charlie, have been established under Adm. Jerauld Wright, Commander in Chief, U. S. Atlantic Fleet.

The two groups will be under operational control of VAdm. William C. Cooper, Commander Antisubmarine Defense Force, Atlantic Fleet. Their mission will be to concentrate on specific antisubmarine warfare problems and tactics in order to improve the state of ASW readiness in the Atlantic.

Group Bravo will concentrate on accelerating and developing ASW hunter-killer (HUK) tactics, doctrine and equipment. Group Charlie will concentrate on accelerating and developing convoy escort tactics, doctrine and equipment including joint tactics between destroyers and patrol aircraft.

Units will be assigned to the two new task groups on a semi-permanent basis, providing greater stability in the assignment of units and efficiency in exploitation of new equipment.

Both groups are similar in concept and organization to Group Alfa, formed last March under RAdm. John S. Thach. The success and effectiveness of Group Alfa, according to Adm. Wright, contributed to the decision to establish the two new groups.

Task Group Bravo, under RAdm. E. A. Hannegan, ComCarDiv 14, will be composed of the ASW carrier *Wasp* with a squadron of fixed-wing ASW aircraft and a squadron of ASW helicopters embarked, plus destroyers and seaplane patrol aircraft.

Task Group Charlie, under RAdm. L. M. Mustin, will be composed of the frigate *Mitscher* plus escort vessels and land-based patrol aircraft. Adm. Mustin is at present Commander Destroyer Flotilla Two.

In addition to the *Wasp*, Task Group Bravo will consist of: Destroyer Squadron 44, commanded by Capt. R. J. Hardy, which includes the destroyers *F. T. Berry, Norris, McCaffery, Blandy, L. Thomas, Keppler* and *Harwood;* Antisubmarine Squadron 31, commanded by Cdr. H. S. Scales, flying Grumman S2F *Tracker* aircraft; Helicopter Antisubmarine Squadron 11, commanded by LCdr. G. I. Dumas, flying Sikorsky HSS-1 helicopters; and six Martin P5M *Marlin* patrol seaplanes from Patrol Squadron 56.

Besides the *Mitscher*, Task Group Charlie will initially consist of: Escort Squadron 14, commanded by Cdr. J. N. Werth, and composed of the escort vessels *Van Voorhis, Lester, J. K. Taussig* and *Hartley;* and six P2V-7 *Neptunes* from Patrol Squadron 11.

Escort Squadron 10, commanded by Cdr. G. A. Sanders, will join the group about May 1 and will include the escort ships *Dealey, Cromwell, Hammerberg* and *Courtney*, now based at Newport.

A NEW RECOGNITION *item in U. S. skies is North American Aviation's Sabreliner which made its first flight recently. The twin-jet utility trainer can carry 10 passengers; weighs only 15,330 pounds. Powered by GE J-85 turbojets, the pressurized Sabreliner has a cruising speed of 500 mph at 45,000 feet; can make it from Los Angeles to New York with one refueling. Developed for specific requirement, aircraft was designed for AF pilots to maintain flying proficiency.*

New Skywarriors Ordered

A3D-2 Delivery Expected by 1960

Douglas Aircraft Company has been awarded a $26-million contract for production quantities of the A3D-2 *Skywarrior* attack planes.

Specifications in the contract call for design refinements and changes which improve the twin-jet, swept-wing aircraft which has been operational in the fleet since 1956.

Performance gains will come mainly through use of a cambered leading edge on the A3D-2's wing. Lower stall speeds and better stability at high speeds will result. Delivery of the conventional nuclear bomb carrying *Skywarrior* is set for summer of 1960.

IGY Eclipse Studies End

Solar Project Very Successful

The Navy's sixth and final Nike-Asp eclipse observation rocket was fired on schedule from the USS *Point Defiance* and reached its designed altitude of 150 miles. Since the flight coincided with a huge and unexpected solar flare, it is expected to yield extremely valuable International Geophysical Year information. However, complete results will not be known for several months.

The solar eclipse observations firings, an IGY project, resulted from months of closely coordinated teamwork among government and private research, engineering and educational institutions.

Naval Research Laboratory's contingent, led by Dr. Herbert Friedman, consisted of Dr. T. A. Chubb, Dr. J. C. Lindsay, R. W. Kreplin, W. A. Nichols and J. J. Nemecek. Mr. R. B. Cox led the Cooper Development Group composed of scientists who have been preparing for the studies for a year.

A shore observatory was erected on Puka Puka Island, about 350 miles northeast of American Samoa, to investigate the results of the rocket firings. Scientists at this location included Dr. John W. Evans of Sacramento Peak Observatory; Leo W. Honea of Hawaii, representing the National Bureau of Standards; Dr. James Ring of England, a University of Wisconsin delegate; and George W. Bunton of the California Academy of Science.

Expedition commander was Capt. Edwin F. Woodhead, commanding officer of the *Point Defiance* (LSD-31).

GRAMPAW PETTIBONE

Grampaw Pettibone Says:

It jest burns my hide to hafta read all the reports that cross my desk indicatin' that both pilots and air controllers are plain ignorin' proper use of the emergency and distress frequency, 243.0 mcs, and usin' it as a tactical chatter channel.

Now hear this!

***1.* A pilot had to turn off the guard monitor on UHF during an actual GCA approach because he couldn't hear the final controller over the constant yakyak on Guard channel.**

***2.* A helicopter pilot engaged in a real rescue off Norfolk couldn't get in touch with other rescue craft because of the steady din on Guard channel.**

***3.* An FJ pilot called Mayday and ejected near his carrier. PriFly had its Guard receiver turned down due to chatter. Fortunately, someone else heard his call for help.**

With increasing numbers of military aircraft airborne at any one time, that one channel has jest GOTTA be kept entirely free for pilots in emergency conditions.

OpNav Instruction 3730.6 of 23 September 1958 gives the word on the use of the UHF military emergency and distress frequency: "The use of this frequency for routine transmissions either air-to-air or air-to-ground is prohibited. Judgment as to what constitutes an emergency requiring the use of this frequency remains a responsibility of the individual naval aviator and other personnel whose duties include the employment of this frequency. The frequency 243.0 mcs. is correctly used when concise transmissions are made only by those aircraft, ground stations, and surface units directly engaged in reducing or averting an emergency or distress situation."

Pot-holed

An AD-5W pilot landed at a West Coast base after a night hop. As he turned off the runway while taxiing, the port main landing gear dropped in a 36x18-inch unlighted manhole which had been left uncovered. The port gear

immediately sheared off and the plane came to a stop on its port wing tip and radome.

Grampaw Pettibone Says:

Great horned toadies! Night vision after turn-off from a lighted runway jest ain't at its best. An aviator has a right to expect such potholes to be lighted. I know I'd scream like a mashed cat if some 0800 to 1630 joker had left me a booby trap like this one! The cost of repairs could probably have filled that pothole with silver dollars!

Bolter

A section of FSU-1P photo *Crusaders* returning to their carrier had entered the landing pattern for a mirror approach. The section leader held the meatball on center all the way down final, and his airspeed was right on 137 knots. The landing touchdown appeared normal to the LSO, but the port main landing gear strut suddenly collapsed, the port wing tip struck the deck, the hook point snapped off, and the unarrested *Crusader* skidded up the angled deck in a screech of tortured metal!

The pilot poured full military power to it, hit the afterburner, and skidded off the deck successfully airborne again! He climbed up through the overcast to 17,000 feet and came off burner to look the situation over. Utility pressure was zero, and his wingman, who had joined up, reported the port main gear was missing, wing tip looked bad, and the hook point was broken off.

Since a field arrested landing was impossible under the circumstances and fuel was pretty tight to make the beach, he flew back over the force and ejected.

Separation from the seat was delayed, because the pilot hung on to the curtain a little too long. Because of this, several shroud lines fouled the blossoming canopy of his chute, and he was greeted by the sight of *two* separate small blossoms! There were also

many small holes torn in the canopy owing to the opening of the chute at 17,000 feet immediately after seat separation.

The trip down, although somewhat accelerated, was uneventful, and the pilot was rescued by the ever watchful plane guard helicopter after only four minutes in the water. The pilots' statement after rescue included an observation that too little official personal survival equipment was now issued and all necessary gear must now be carried in the pockets of the pilot's flight suit.

Grampaw Pettibone says:

Sufferin' catfish! You did some mighty quick work there on the flight deck, and if you hadn't lost that hook point you mighta made it in.

Since the pilot had on a Mark 3c Mae West which carries only two smoke flares, his ideas on needed extra survival equipment were interesting. This lad was *loaded!*

He had a sheath knife sewn in a case on his right leg. In the right front lower leg pocket two screwdrivers eight inches long, signal mirror, pen flashlight, and a packet of F8U flight and emergency procedures. The right rear pocket contained a small tool kit including one Varco saw, one Dzus key, one four-inch crescent wrench, and one 3/8 combination wrench. The left front lower leg pocket contained photo data cards, four navigation charts, and one photo computer. The left rear pocket contained one dye marker, whistle and compass. Two pencils, cigarettes, and matches in left arm pocket, wallet and keys in breast pockets, and knee board on right leg.

Your old Dad, carrying this much gear in the water, woulda been sputterin' and blowin' like a he-walrus in the seal pool at Marineland. Ever check your *own* pockets for built-in anchors?

Quote of the Month

(From Flight Surgeon's comments in an MOR recounting the adventures of a young pilot who set his FJ-4B down a bit short of the runway.)

"I have known Ensign P—— for three months and regard him as a conscientious aviator. I'm sure his accident has been a maturing experience."

Confusion

Two senior officers were scheduled to fly a TF-1 *Trader* to a monthly Safety Officers conference at a West Coast base. Six other aviators were scheduled as passengers on the trip, and all eight alert birdmen were aboard as the aircraft lined up for take-off after a very thorough runup and briefing of the passengers on bailout and ditching.

Just before lift off speed was reached on the take-off the plane started to yaw to the left. After take-off, the yawing increased, and the pilot was forced to use an increasing amount of rudder and rudder trim. By this time, with only about 400 feet of altitude, the plane had swung left to a heading paralleling high tension lines and a populated area along the shoreline.

One of the aviator passengers suddenly reported that the port engine was on fire and flames could be seen pouring out of the oil cooler doors. Reception on the intercom was so poor that all further conversations were conducted by shouting—and all pilots were shouting and giving conflicting advice.

As the pilot hit the feathering button to the port engine, the copilot lowered the landing gear on the advice of *one of the passengers* and immediately raised the wheels again as the pilot shouted "Gear up."

He had lost 200 feet and airspeed had dropped to 120 knots. Full right rudder and aileron were applied in an attempt to control the plane's heading, which was still falling off to port. Airspeed dropped alarmingly as the port engine feathering button was punched and fire extinguisher actuated.

The starboard throttle had crept back due to a loose friction knob while the pilot was fighting to maintain control and the copilot was busy *fastening his shoulder harness!* Precious altitude was lost and airspeed dropped to 90-95 knots.

Ditching was inevitable. As the pilot attempted to flare and level the wings, the left wing, port engine still windmilling, hit the water, and the plane cartwheeled, coming to rest in 3 to 5 feet of water, inverted.

All eight aviators aboard were injured but survived. No one had worn a parachute harness, only one had on a Mae West, neither pilot had used a hard hat, and three out of five passengers did not have shoulder harness fastened. One passenger who was strapped in, released his safety belt on the first impact and caught the full force of the second one. The TF was a strike.

Grampaw Pettibone says:

Gosh, dang it, this whole deal really hurts my soarin' blood pressure! Dropping the landing gear on the pilot while he had his hands full with a burning engine at low altitude purty near cost us eight birdmen. It's just too doggone bad there weren't more seats up front to take care of everyone trying to get into the act.

After hearing a thorough bailout and ditching briefing, how all hands aboard could ignore Mae Wests, parachutes and shoulder harnesses, beats me. The average military aviator riding with someone else at the controls most generally almost makes a quadruple amputee of himself cinching things up tightly. Until BuMed revises the physical qualifications for NavCads to include feathers and webbed feet, we better use the gear BuAer provides us to make up for the lack of 'em.

ANGELS OF THE CARRIER FLEET

CASE HISTORY: A fighter pilot is catapulted from his carrier. He experiences a power failure and rides his jet into the sea. He scrambles out of the cockpit, disengages himself and swims away from the sinking plane. Looking up, he sees a helicopter racing toward him. A sling, or seat, is lowered. He boards it and is hoisted into the helicopter. Returned to his ship and examined, he is pronounced fit to fly again. Elapsed time from takeoff to returning to the carrier is 58 seconds. *This rescue was classed as routine.*

Case history number two: A rescue helicopter on plane guard duty experiences power failure and crashes into the sea. The pilot escapes but his crewman is trapped inside. The pilot swims down to help his crewman out, but cannot find him. Surfacing, he sees the crewman floating unconscious on the sea. A rescue helicopter appears overhead. The crewman of the rescue helicopter is lowered into the sea to help the unconscious man onto the rescue seat. In the helicopter the unconscious man is given artificial respiration and is saved. The crashed helicopter's pilot is recovered soon afterward. *This rescue was classed as complicated* by the experts.

Case history number three: A *Crusader* pilot crashes close aboard the carrier and is injured on impact with the water. The sea is running rough as the helicopter appears overhead. A rescue sling is lowered and the *Crusader* pilot, still wearing his rescue pack, gets his head and one arm into the sling. In this manner he is hoisted to within a few feet of the open hatch. The pilot's back-pack is blown open by the rotor wash. It billows out and brushes against the helicopter's rotors but does not foul them. Immediately, the survivor is lowered back into the water and the helicopter crewman goes down on the hoist to help him get untangled from his parachute and back into the sling. As the helicopter hovers over the survivor and his intended rescuer, the rotor wash once more billows the chute. It swirls about, entangling pilot and crewman, and both drown in the "spaghetti." This case was classed as *extremely complicated, fatal,* by the rescue experts.

Few questions weigh more heavily on the minds of aviators than this: What are *my* chances of being rescued if my plane crashes into the sea? Will *my* rescue be routine, complicated, extremely complicated? Above all, will it be successful? To a different degree, the same questions exist in the minds of all who might find themselves in the water and in need of rescue.

To learn the answer, *Naval Aviation News* sent a reporter to NAS Lakehurst where he interviewed the officers and men of Helicopter Utility Squadron Two, the Atlantic Fleet unit charged with prime responsibility for air-sea rescue. (HU-1, the Pacific Fleet counterpart of HU-2, is based at NAS Ream Field. Both units have pioneered in better methods of life-saving since they were commissioned simultaneously in April 1948.)

In the shadow of the Hindenberg disaster scene at Lakehurst, Cdr. T. R. Wheatley, the squadron commander, not only gave an encouraging answer to the carrier pilots' questions, but he and his subordinates gave a full rundown on how the squadron approaches its task of life-saving. His answer in essence is that at the present state of the rescue art, 19 of 20 survivors will be rescued from the sea and returned safely to their carriers to fly again.

"But it's that *twentieth* man, the five percent, that keeps us awake nights looking for better ways, better equipment and better rescue techniques for us to do our job," he said.

When deployed, the detachment acts as a separate squadron aboard ship, handling its own maintenance, safety and personnel problems while following the ship's schedule.

Cdr. Wheatley summed up a sea-going detachment's responsibility like this:

"We go out as guardian angels for carrier pilots who know rescue may be only 4 seconds away if they have to ditch. We will go so far as to put a crewman into the water to help an injured aviator. Our men are professionals in their work. They won't settle for any loss of time over the pilot. On occasion, we've had the helicopter over the pilot within three seconds of his ditching and the pilot inside the helicopter in 30 seconds."

When the HU-2 detachment reports aboard a carrier, one of the first missions is a briefing conference. It is mandatory that all fliers attend the briefing, and desirable that all flight deck personnel be present.

The officer in charge of the helicopter detachment demonstrates all types of rescue equipment he is capable of using under all rescue situations. Then pilots who will be flying from the ship display the various types of pilot-worn equipment they are likely to wear, so that the rescue detachment will know what problems may be encountered.

HOVERING ANGEL COMES TO RESCUE OF CARRIER PILOT AFTER HIS DITCHING AT SEA

HAPPY PILOT IS RETURNED TO HIS SHIP

"We have made a great deal of progress, but we are far from becoming complacent."

Few squadrons are dispersed so thoroughly as a helicopter utility squadron. On a given day, HU-2 had detachments on the Sixth Fleet flagship, at the Search and Rescue headquarters in Norfolk, aboard six cruisers, 11 carriers, five icebreakers, two survey ships, one ARG, five LST's, one LSD, one AKD, two oilers and three command ships. One group was returning from the Arctic DEWLine resupply mission and another group was readying for *Deep Freeze* duty in the Antarctic. The Administrative Officer, LCdr. G. E. Magnuson, was considering the ramifications of the delayed return of a detachment from the *Essex* which had been shifted hurriedly from Lebanon to Formosa.

Thus more than half of the squadron's 104 officers and 460 men are deployed with more than half the squadron's 60 helicopters at all times.

A typical detachment normally comprises two HUP helicopters aboard a CVA, and one HUP or HUK-1 on a CVS. There are approximately two pilots and six enlisted men per helicopter assigned to a detachment, with several of the men qualified in all respects as "helicopter rescue aircrewmen."

The Angel leader explains in detail the various techniques of rescue and relates what tools he will use under what conditions, including how the helicopter will work with the plane guard destroyer in case of an unusual or multiple rescue while air operations are in progress.

A training film is being produced currently under the technical direction of Cdr. Frank Bigham, Jr., HU-2 operations officer, which will show the various aspects of air-sea rescue. When ready for distribution the film will be identified as MN-8760.

When air operations are scheduled, the plane guard helicopter is first to take off from the carrier (and last to return). The pilot delivers mail from the carrier to other ships in the formation, flies weather reports and flight schedules to the plane guard destroyer, then takes his plane guard station off the carrier's starboard side.

Since HUP's not equipped with flap restrainers cannot engage rotors with relative winds exceeding 27 knots, it is

often necessary for the carrier to steam down-wind until the helicopter is launched, then back into the wind for launch operations.

From his vantage point, the helicopter pilot has a commanding view of the area forward of the carrier. If a plane ditches, he races in at 60-70 knots to pick up the pilot. Knowing that life or death rests on a very delicate balance of time, often a matter of seconds, the rescue pilot wastes no time in approaching the crash scene.

When the crashed plane's pilot is in sight, the rescue pilot must make the proper decision as to what type of rescue will be attempted. There are several variables which affect his decision. If the pilot appears to be uninjured, the sea fairly calm, and the water unobstructed by such litter as dangling parachute shrouds, the pilot decides on either a rescue seat or a kapok sling.

If the pilot appears unconscious, the rescue helicopter pilot must decide whether to use a net pickup or whether to lower the crewman to help the pilot into or aboard the rescue device. No two circumstances are identical, so no set standard can be followed. One point is certain: the decision must be reached fast and it must be right.

WHATEVER technique is used to recover the survivor, he must be hoisted into the helo in a hurry. Once safely in the helicopter, another decision must be reached by the pilot: Is the survivor injured so badly that he must be returned to the carrier immediately, or can he be flown in the helicopter until operations such as landing jets low on fuel are completed?

If the man appears seriously injured, the helicopter pilot informs the carrier by radio and requests permission to land the survivor. Otherwise, he keeps the man airborne.

Does the carrier greet the rescue crew with special treatment when a pilot is saved, like the old practice whereby the carrier gave a destroyer five gallons of ice cream for returning a downed pilot?

"You kidding?" a pilot asks. "They give us a hard time for delaying operations!"

Pressed for details on the actual pick-up of a survivor from the water, the *News* reporter was told to draw a survival suit and life vest and find out for himself by going through the actual rescue routine.

Floating in nearby Lakehurst Lake with his Mae West inflated, the reporter watched LCdr. Robert B. Read, squadron safety officer, approach him in a HUP. As the helicopter drew near the pilot hovered, opened the hatch to activate the hoist mechanism, and crewman J. J. Loch, AD1, lowered the kapok sling into the water to discharge static electricity.

The pilot air-taxied the sling toward his "survivor." As the helicopter approached, the rescuee noted a circular ripple on the water below the aircraft. The instant the ripple's outer edge passed over him, he felt as though someone had suddenly forced a handkerchief over his mouth and nose. The sensation of losing his breath because of the wind blast created by the helicopter's blades came as a shock.

Swimming into the sling and twisting one arm back through it so the sling would fit around his back and under his armpits when it was raised, the reporter made sure his Mae West was completely inside the sling, as he had been instructed, then signalled the hoist operator to pull him up.

There was a side-to-side swaying as he became airborne, which was checked by the rescue crewman, then the suspended passenger began to swivel on the hoist cable. Just short of the open hatch the survivor was stopped long enough to grasp the edge of the aircraft with his left hand and turn his body in a direction facing aft, then he was hoisted into the helicopter.

He was kept attached to the hoist long enough for the crewman to close the hatch, then lowered to the floor of the helicopter for a flight around the lake.

Lowered back into the water via the same sling, he watched the helicopter orbit the lake while the hoist operator changed from kapok sling to the HU-2 rescue seat. Meantime, crewman Loch had been lowered into the lake and replaced by R. S. Wallenthin, AD1, a student rescue air-crewman who was breaking into air-sea rescue with HU-2 after spending several years in VR and VP squadrons.

Once more the rescue device was dipped into the water to discharge static electricity, then it was air-taxied toward the rescuee. This time there was no hesitation or apprehension on the survivor's part as to whether or not he could remember all instruction concerning his mounting technique. He simply grasped the shank, straddled one of the three prongs, and was quickly hoisted inside.

Waved to the back of the helicopter, he watched Wallenthin pick up Loch, then was flown back to the base.

LCdr. J. F. Cronin, squadron development officer, explained the origin of the "Triple Saddle Seat" which had so impressed the observer.

Six or seven years ago an unidentified member of HU-2 conceived the idea for a seat-type rescue device which would overcome the problem of a heavily-clad pilot trying to squirm into the kapok rescue sling. A device was made and modified some 20 times before being abandoned as impractical. Then, in the spring of 1957, the squadron began an intensified effort to develop improved helicopter rescue equipment and techniques.

The seat was proposed by several squadron pilots as an inverted T-bar arrangement. Capt. Robert G. Dosé, Commanding Officer of VX-3, contributed the suggestion that three instead of two horizontal prongs would eliminate any need for orientation of the device when mounting it.

LCdr. Cronin, working first with T. H. Williams, AM1, and later with L. V. Botta, AMC, of HU-2, tried to bring the concept to fruition. They designed and tested nearly a score of seats, working from the inverted "T" concept up to the present version of the "triple saddle" which resembles a three-pronged anchor.

The HU-2 rescue seat is all-aluminum in construction, hollow throughout, with a pound of lead at the crown. At the top, or eye, there is an air chamber which keeps the seat in a normal, upright condition in the water. Three flukes extend out from the bottom, permitting the survivor to simply climb aboard one or more flukes to be hoisted up. (In one instance the pilot had burned both hands badly during the crash and was rescued successfully by *leaning* against the shank as he was hoisted up.)

In the event of an unconscious survivor, the helicopter's crewman can be lowered into the water to put the survivor on one fluke while he, the crewman, rides another fluke and holds the unconscious man aboard safely during the hoist.

HOW KAPOK RESCUE SLING IS TO BE WORN

HU-2 SEAT PERMITS A MULTIPLE RESCUE

TRIPLE SADDLE SEAT IN A LIVE RESCUE

GREATEST benefits of the HU-2 seat are that the survivor can board it by doing what comes naturally, plus its effectiveness with various items of pilot-worn clothing. According to Lt. Richard H. Tabor, flight surgeon of VX-3, the HU-2 seat is not only effective with all presently worn equipment, but with any suit projected for use in the foreseeable future.

The ease and speed with which a survivor can mount the rescue seat and the speed with which he can get off inside the helicopter add up to another significant factor—rapid cycle time. This means that when more than one man is in the water, the second man's turn to be hoisted comes in seconds rather than minutes. Any improvement which can reduce the time during which a rescuee is exposed to immersion adds greatly to his chances for survival.

The triple-saddle seat worked so well under evaluation that ComNavAirLant authorized its use in the Atlantic Fleet immediately. To date, HU-2 has constructed 32 seats and has them in use. Seats have been sent to HU-1 for evaluation and use, and to other services' SAR units.

The Bureau of Aeronautics has asked for quantity production of the seats in the 1959 budget.

Other devices designed or modified by HU-2 to improve rescue techniques are a webbing cutter which can be used by the helicopter crewman to free a survivor from his parachute in the water, a cable cutter which can be used by the crewman or pilot of the helicopter to sever the hoist cable in the event of an emergency, and a tightly-packaged raft which the crewman can wear into the water, inflate, and paddle downwind to the survivor to aid him.

Cdr. Charles J. Burton, presently the squadron's executive officer and scheduled to relieve Commander Wheatley as commanding officer this month, acknowledged the importance of improvements and techniques that have been made in recent years, then he outlined the most significant unsolved problems of air sea rescue at the present time.

"I believe that too often in the past, planners have been diverted by the word 'utility' which appears in the squadron's designation," he began, "to the extent that the prime problem of saving lives in the open sea has been underestimated."

The problem is being recognized, he said, as evidenced by two major events of this year: for the first time in history, a CNO-level conference on helicopter rescue was held in Washington, with representatives from both fleets, the other military services, and all cognizant bureaus and offices concerned with rescue invited. Also this year, HU-2 was given a development mission, to find and perfect better ways of rescuing airmen from the sea. To date money and manpower have been so limited as to make the squadron's development program austere, but the problem has at least been recognized, he explained.

"We have tried various types of nets to save the pilot who is floating unconscious and under circumstances where it is not feasible to lower a crewman," Cdr. Burton continued. "But the best net we have tried is not completely satisfactory for a complicated rescue.

"The problem of acquiring a survivor in the open sea, when he cannot help himself and when the crewman cannot go into the water, is a tremendously difficult and complex one. No other rescue service has the same problem that faces carrier-based angels—that of saving, several times a month, a man who just plummeted in to the open sea, who is dazed or injured, and who may not have been able to inflate his Mae West.

"To this man, seconds or minutes determine whether he lives or dies."

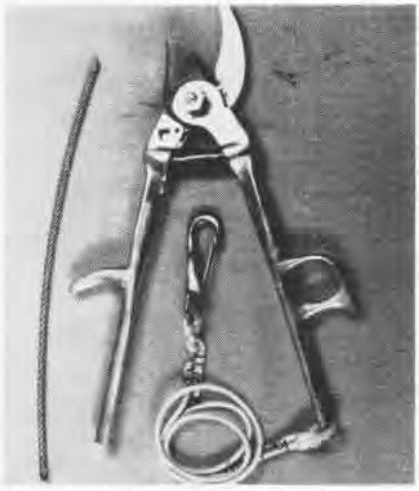
To acquire such a man from the sea, when the sea state is keeping him in constant motion, when the helicopter pilot cannot visually put himself "on target," and when water drag and wind blast strongly affect both the target and the net, is far different from the problem of snatching a man from the land or from relatively calm waters.

"We are working continuously on the problem of an 'acquiring' device which will prove effective under extreme conditions. Close liaison with the Naval Air Development Center at Johnsville, Penna., has been established to facilitate progress in this area," he said.

"We need some sort of breathing device which can be worn by the rescue crewman who has to dive below the surface to free a trapped pilot from his aircraft, and we need better communications between the pilot and his crewman in the water during the rescue. We need small radios the survivor can wear, for homing of the rescue helicopter and

EMERGENCY CASE IS DELIVERED BY HELO

THESE SHROUD LINES CAUSED TWO DEATHS



CABLE CUTTERS DESIGNED BY HUTRON TWO

for communication with the helicopter pilot during rescue."

One of the rescue squadrons' greatest shortcomings, the commander explained, is helicopters themselves. The helicopter's ability to fly rapidly toward a survivor and to hover was a great improvement for sea rescue, when compared to a slow surface vessel. But this same unique capability has masked the fact that the helicopter, while a great step forward, needs more than the ability to hover and drop a hoist cable to be fully effective as a rescue device.

"I think that for several years there has been complacency in the view that a helicopter, by virtue of its being a helicopter, was a *rescue* helicopter," Cdr. Burton said.

"Consequently, a utility helicopter was considered a rescue helicopter. The newer ones are built to pick up a greater load and carry it farther, but they don't meet our major problem—a machine that can *first of all* pick up a survivor from the water and *secondly* carry a bigger load. It amounts to the need for a completely new approach to the design of a rescue helicopter. We need to design and buy 'rescue' helicopters which will have utility capabilities, rather than buy 'utility' helicopters."

He explained that the Kaman HU2K, still under development and scheduled to fly in 1959—with its increased power, automatic stabilization and other features—is a better helicopter, in general, than the HU squadrons have had. It promises to come closer to solving the rescue problem than any previous helicopter, but it, too, was designed first as a utility helicopter and secondly as a rescue vehicle.

What *should* the true rescue helicopter possess, he was asked?

First of all, he replied, it should have sufficient power to carry a pilot and *two* crewmen to the rescue scene so that one crewman can remain inside to operate the hoist while the second crewman is lowered into the water to help the survivor. It should be able to hover without drift and pick up a minimum of three survivors.

It should have a high-speed hoist with two-speed control. The high speed permits better control of any rescue device attached to the hoist cable, while a slower speed is required for the last few feet of the hoist to prevent injury to the survivor as he enters the helicopter.

One of the most important features the true rescue helicopter should have, Cdr. Burton pointed out, is that the pilot should be put in visual control of the operation. He should be able to see the rescuee in the water during his approach and also *during the acquiring phase*—where the survivor boards the rescue device or is "acquired" if he is helpless. At present, the pilot sees the survivor during his approach, but not as the helicopter comes over him.

He has to rely on signals from the crewman. This puts the pilot in the predicament of a blindfolded man at his desk being instructed by a second party as to how he should move his hand to pull a pen on a string into a moving ink well he cannot see. Of course the blindfolded man can get the pen in the inkwell eventually, but in rescue it must be done immediately because life and death rest on a delicate balance of time.

"To get such visibility would involve a basic engineering problem in helicopter design," Cdr. Burton continued. "One interim approach might be to extend the rescue device from some sort of boom arrangement to the front or to the side of the pilot, providing a tripping device could be designed, so that when the survivor is acquired, the cable could be released from the boom to permit the actual hoist to be made from the helicopter's center of gravity.

"Another possibility for giving the pilot visual control of the rescue might be a transparent bottomed helicopter," he said, "but such a configuration would likely result in a structural problem and it would require the pilot to look directly down on the survivor, rather than to the front or side—at the expense of taking his eye away from the horizon. No aspect of the rescue operation is more important than for the pilot to keep the helicopter under control while the rescue is being performed."

Another *must* item recommended for the ultimate rescue helicopter was cabin space adequate to stow the survivors after their rescue. The importance of working space to get the survivor out of the rescue device and out of the crewman's way, to give him first aid if required, or to get the hoist back through the hatch and into the water to pick up further survivors, was listed as a vital requirement for helicopters of the future.

Ultimately, too, the rescue helicopter must have a cap-

ability for night rescues at sea, he said. The daytime complexities in finding and acquiring the rescuee are multiplied by darkness and the extreme contrasts of light and dark produced by any floodlights poses a problem.

"As the skipper said, we are doing the best we can with what we've got," continued Cdr. Burton. "What we want is aircraft and equipment, and trained personnel, to save *all* the pilots who ditch. Our present equipment is completely effective only when we have the right combination of weather, a pilot who can help himself to some degree or who can be helped by the crewman in a sea that is not too heavy for the crewman to be lowered into.

"The sling is a good device for ideal-to-moderate seas, provided the pilot can get himself and his flight clothing into the sling, or if he can be gotten into it by the crewman. The HU-2 rescue seat is in most cases much better than the sling.

"But since all the refinements we need depend upon a complete and time-consuming re-evaluation—one which would give us a helicopter designed 100 percent for rescue, yet prove adequate for utility, we must continue to do the very best we can with what we have," he concluded.

Doing the "very best with what we've got" has amassed these impressive statistics. Up to March 1958, HU-1 had rescued 613 pilots and crewmen while HU-2 has saved some 400. (When these figures were discussed, an HU-2 man quickly commented, "They had more crews in Korea than we had." HU-2 had only those detachments in Korea which were aboard Atlantic Fleet units when the shooting started and who rode those ships around to the Pacific.)

To learn *how* the Utility Squadrons get such results from equipment at hand, LCdr. W. E. Pulaski, HU-2's training officer, was interviewed.

"The thing that makes our training program most different from that of most squadrons," he began, "is the stress we place on survival. With most squadrons, survival is a matter of self-preservation. With us, it's our most vital reason for existence, saving the life of somebody else.

"We have our share of headaches, with more than half the squadron deployed at all times, but our training is conducted at a fast pace. As soon as a pilot, crewman or maintenance man reports, we begin putting him through extensive training."

Pilots come to the squadron fully qualified to fly helicopters, so with them it is a matter of perfecting a rescue technique. As soon as possible, they are given workouts in the water hoisting mock-ups.

Some crewmen come to HU-2 qualified as plane captains in fixed wing aircraft, while others are fresh from basic airman school. Those selected must go through a rigorous ground and in-flight training program.

THE TRAINING is designed to qualify the man for *helicopter rescue crewman* duties, not merely aircrewman. For every hour of flight there is an hour in the classroom. Subjects include the types of rescue equipment and their uses; the types of pilot-worn equipment and how they influence rescue from the water; survival on sea or land; first aid, with emphasis on fractures, hemorrhage, artificial respiration, bandages, splints and wound treatments.

The non-rescue phases include instruction in equipment peculiar to helicopters, such as weight and balance; aircraft handling; safety; aircraft tie-down procedures; navigation; and finally, communications.

Before earning rescue aircrewman designation, each man must make at least three sling and three seat live pickups.

The maintenance crews are taught so thoroughly in the type of aircraft they will deploy in that they can go aboard ship and work independently in keeping their helicopter 100 percent independent of the ship's company and ready for service during daylight hours.

The squadron's greatest asset, however, was acknowledged by several HU-2 officers as being the keen "will to do" which has been evidenced by such developments as the triple saddle seat, cable and webbing cutters, crewman's raft and other ideas that came from men of the squadron.

"In the last year, our helicopters have made 17,359 shipboard landings, which accounted for 16,561 flight hours," stated Cdr. Wheatley with pride. "That's a lot of hours, even for a patrol squadron. Most of them were flown for non-rescue purposes, such as personnel transfers, guard mail and cargo missions.

"We think we are doing a good rescue job with the men and machinery we have. But I feel we could do much better if we had better equipment and a longer period for training, as well as a recognition of our primary job—rescue.

"We cannot afford to relax until we have the best equipment and the best techniques of any Navy in the world."

BRAZILIAN VIPS ARE AIRLIFTED BY HU-2

HU-2 'COPTER AT THE SHRINE OF FATIMA

FUEL LIFT IS MADE IN THE PERSIAN GULF

LET'S LOOK AT THE RECORD

10,186 Accident Free Hours
Night Flying Unit at Whiting Field

Whiting's Night Flying Unit has operated for more than a year without a single accident. During this period they flew 10,186 accident-free hours and trained 1400 students. Students receive four hops: a dual, a solo (touch-and-go's are included in these hops), and two cross-country navigational hops.

A big factor in the unit's fine safety performance is the excellent teamwork and training exhibited by the maintenance crews.

The unit is independent of any squadron and LCdr. R. Graves, Night Flying coordinator, is directly responsible to the Training Officer.

Instructors are from BTG-2 and -3.

Retires After 32 Years
Owens, AOC, Served On Hornet

Aviation Chief Ordnanceman Carl Owens has retired from the Navy at NAS JACKSONVILLE after serving 32 years.

Owens joined the Navy in 1926 and first entered Naval Aviation in 1931 when he was ordered to the Langley. As time passed, he put into commission the carriers *Ranger*, *Yorktown* and *Hornet*. He was on board the *Hornet* when Gen. Doolittle made the famous Tokyo Raid from that ship. He later survived the *Hornet's* sinking.

Admiral Helps Set Record
Co-Pilots S2F in 37,000th Landing

RAdm. E. A. Hannegan, Commander of Carrier Division 14, made his first even-thousandth landing in the 27 years he has been a naval aviator while his flagship, USS *Wasp*, was operating just south of Crete.

Flying as co-pilot of an S2F *Tracker*, with Cdr. H. H. Scales, C.O. of VS-31 as pilot, the flag officer landed on the ASW carrier to score the ship's 37,000th landing.

While attached to the *Wasp*, VS-31 planes have made more than 2590 landings and flown 5230 hours for a total just short of 580,000 nautical miles.

LT. W. H. FLEISHMANN, *right, Safety Officer, Training Squadron 15, is congratulated by LCdr. R. M. Netherland, squadron leader, for his role in safety program which netted VT-15 more than 20,000 hours of accident-free flight.*

VA-106 Achieves 34 E's
Score Piled up at Guantanamo Bay

Attack Squadron 106, during a month's deployment to NAS LEEWARD POINT, Guantanamo Bay, piled up a grand total of 34 individual Navy "E"s in four competitive bombing exercises. Nineteen squadron pilots, flying A4D-2 *Skyhawks*, competed in High Altitude Dive Bombing and three types of Angle Loft Bombing: Low, Medium, and High. Ltjg. William W. Foote took squadron honors by winning four individual "E"s, one in each exercise.

In 23 working days the *Gladiators* flew a total of 869 hours in 963 sorties and dropped 4000 bombs. In addition, all pilots basically qualified in special weapons deliveries and day qualified in field carrier landing practice. Five pilots qualified in night FCLP.

VF-114 on the Shangri-La
Double Seventeen and Triple Zero

Lt. R. B. Moore, VF-114 pilot, made history and qualified for membership in the Triple Zero Club when he brought his F3H-2N *Demon* to the 17,000th halt in the arresting gear cables of the USS *Shangri-La*. (This is the second time around for CVA-38—recommissioned in January 1955.)

Lt. Moore is the second member of his squadron to qualify for the Triple Zero Club. LCdr. E. Roth made the 16,000th landing some time ago.

Double 17 for Lt. Moore, since it was also his 170th arrested landing.

Refueling Record Claimed
VAH-16 Averages 4.8-minute Cycle

Aircraft crews and maintenance personnel of VAH-16, based at NAS NORTH ISLAND, claim a record. In the flying filling station business, the squadron completed an aerial refueling contact once every 4.8 minutes of actual flying time in a month's refueling operations with Marine Air Group 13 in Hawaii. The 4.8 figure includes all tanker flying time used in getting to and from the rendezvous point, as well as on station.

Individual crew record of 3.5 minutes, or 90 refueling hookups during a 5.3-hour flight, was picked up by Lt. R. K. Watson, aircraft commander, Ltjg. J. F. Lancio, bombardier/navigator, and D. C. Barnett, AT1.

VAH-16 flies AJ-2 *Savage* aircraft.

Copter Recovers a Drone
First Such Recovery at Pt. Mugu

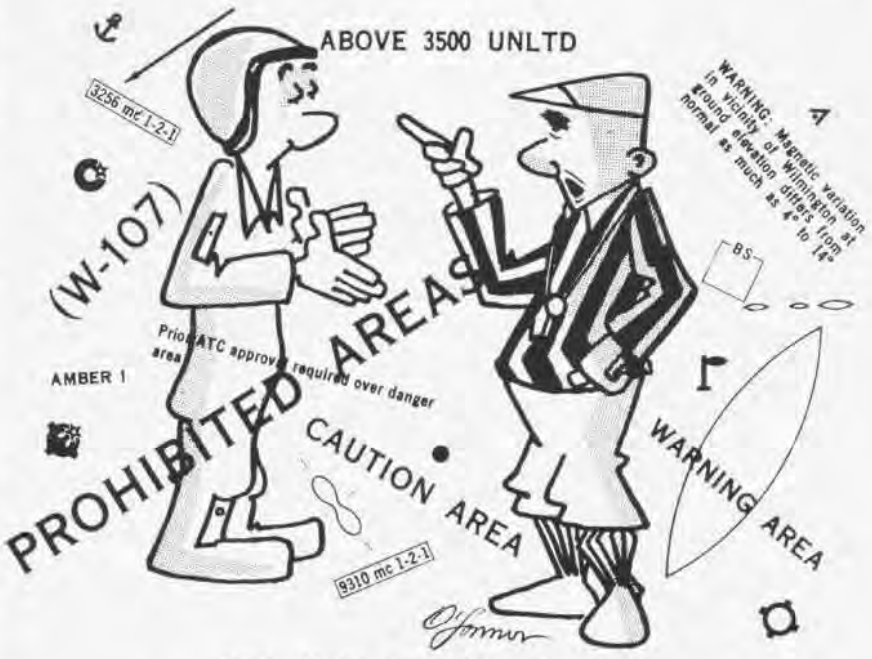
A Ryan KDA-1 *Firebee* target drone has been recovered successfully by helicopter at the Naval Air Missile Test Center sea test range with seas running four feet high.

Heretofore, drone recovery at Point Mugu has been accomplished by boats from Port Hueneme.

The helicopter's ability to recover drones from rough waters had been proved by Atlantic and Pacific fleet units. Experts at Point Mugu feel that the time saved by helicopter drone recovery, coupled with the helicopter's ability to retrieve drones from heavy seas, might have permitted missile operations in the past which had been cancelled because it was impossible for boats to reclaim the target under the prevailing sea conditions.

RYAN FIREBEE IS RETURNED TO PT. MUGU

FLYING AROUND IN A CROWD



'WELL, COACH, WHAT DO I DO NOW?'

SINCE MAN first "slipped the surly bonds of earth" in powered flight, the word "space", preceded by a galaxy of modifiers, has come into its own. As man extended his reach and projected plans for conquering space, there seemed to be only one thing certain: there was plenty of it.

But this certainly has proved false, for in that space, called by traffic experts, airspace, there is a shortage. Pilots seem to be flying around in a crowd. The whole picture presents elements of a nightmare concerned with a maze of flying vehicles and a host of government regulations with important notes in small type at the bottom.

Some 50 years after a single airplane first bored small holes in the sky, each year has seen an increase in air traffic, so that our age is now confronted with an enigma—"inner space."

The Wright brothers would be amazed to learn that there simply isn't adequate space to support the traffic in the bright blue yonder that their invention has gone on to fill. They would be outright flabbergasted if they could see a recent aeronautical chart with its special use areas, sundry airways and complex procedural requirements. Charts are getting to be so complicated it takes a wise man to read them, an astute man to follow them, and a very clever man to know *how* he is going *where*.

Space experts are glum these days. The future for inner space is not particularly promising. There are too many activities with too many contraptions, who want to use all the airspace they need

without delay—
without inconvenience—
at a minimum cost—
with a high degree of safety.

This is a large order. "Inner space" men are not faced with the hazards of "outer" space, such as cosmic radiation, extreme temperature variations, or meteorites. They do have the problem of how to manage the mass of machines and objects which want to use the available airspace.

Consider these candidates and their space requirements: airplanes—large and small, civilian and military, jet and prop, fast and slow; unconventional types—helicopters, convertiplanes, VTOL's, and experimental aircraft on the way. But these are not the only airspace vehicles, for there are rockets, missiles, blimps, balloons, kids' kites and high-flying coke bottles. Nor is that the end—every TV broadcaster in the United States seems to want a 1500-foot tower three miles from the airfield.

Consider, too, the activities being conducted in air space include, for example: military training, commercial transport, business flying, flight testing, experimentation, research, recreation, weather analyses. It's clear "inner space" has a life and population of its own, and how to make rules that will decrease delay, minimize costs and increase safety is causing headaches.

Again and again steps have been taken in an attempt to bring order out of the confusion of multiple rules and requirements. Every attempt has been made by the Civil Aeronautics Administration (CAA) to satisfy users of airspace and yet increase safety. Of the many measures taken or suggested, some were doomed by lack of necessary facilities. Also, some of the difficulty lay in the interlocking qualities of the problem. The solutions were sometimes in an area where, when one phase was corrected, it either threw another solution out of phase or created a new problem.

Even a very knowledgeable fellow, for example, a Naval Aviator, finds it difficult to maintain a clear understanding of the current airway structure. He is faced with all kinds of airways and special areas: low frequency airways, VOR airways, V 1500 series airways, positive control airways, high altitude jet routes, control area extension, and the Continental Control area. To this maze are added a multitude of restricted areas, high density zones, preferential routes, locally established corridors and procedures and a variety of low and high frequency navigational aids. Meanwhile the civil air regulations increase in number and complexity. Today, even taking an IFR clearance can be frightening.

What can be done to bring order to this highly complex and confusing picture? How can the expanding commercial carriers fly directly to their destination without suffering delay or

By Commander Robert E. Pine, USN
Head, Airspace Section, CNO

the penalty of devious routing, maintain a high degree of safety, and still not seriously impair military training which is constantly requiring more air space for high performance aircraft and weapons? How can general aviation continue to fly at random, frequently without radios or charts or the incentive to use these facilities even if they had them, and not create an air collision hazard? The answer is simple —they can't.

Let's face it. All users must suffer a certain amount of inconvenience and delay if safe and equitable solutions are to be reached. Civil air carriers have, of course, opposed such penalties, but in reality they will have to accept a share if the military is to maintain any semblance of an efficient fighting machine. The Navy must therefore strongly uphold its airspace requirements and their effect on defense.

To play its part in helping to develop a sound airspace program, designed to meet the requirements of multiple use, the Navy with the cooperation of the CAA established in the summer of 1957 three Navy regional air space offices in the CAA regional headquarters in New York, Fort Worth, and Los Angeles. Each office is manned with a Navy regional airspace officer (NARASPO) having the rank of commander and a small office force. These officers act as members of the various regional airspace subcommittees, participate in special studies of problem areas and act as contact for any Navy/Marine command with airspace problems.

The value of NARASPO's services was proved by a heavy demand for them. Almost at once it was necessary to create an additional commander billet for each office, and further expansion may be required in the future. As an additional measure, certain command reorganization is being considered by CNO which would provide more thorough and positive airspace coordination.

The alert was sounded again this year when spectacular air crashes stunned the nation. People now knew what the specialists in air traffic already knew: that there must be a more effective segregation of air traffic. But between saying it and doing it is a wide area of complex and difficult activity and planning, for military training is as far flung as the civil airways.

But despite the difficulties, and the slowness of the policy-making machinery, it has been determined that steps should be taken as follows:

• Certain concentrated military training areas should be designated when in use, and other users of the airspace should be restricted in some manner from entering during these periods when other adequate safety measures cannot be taken.

LET'S CRYSTAL BALL THE FUTURE

• Teams consisting of representatives from the CAA and military services should analyze each training complex, recommend corridors, tunnels and realignment of Navaids, airways and restricted areas to insure traffic segregation when feasible.

At the same time, it was obvious that the airspace must be more efficiently used. This could be satisfactorily accomplished through the designation of joint control areas and restricted areas. Under such an arrangement, the restricted area is controlled by CAA and has no published hours of usage, but is in effect as needed by the military activities concerned and reverts to Control Area for normal ATC purposes at all other times. A notation "ATC clearance required prior to entering" would be reflected on aeronautical charts and publications.

NAVY PROGRAM TO REDUCE MID-AIR COLLISIONS

October 1957—CNO directed major naval air commands to review frequently instructions and operating procedures on high-speed, high-rate descents by jet aircraft under VFR conditions.

February 1958—The U. S. Naval Aviation Safety Center advised naval air station commanding officers to be thoroughly cognizant of their complete responsibility for all air traffic within their tower controlled area and to review local air traffic agreements to determine adequacy.

CNO redefined local flying areas and directed commanding officers to review local VFR traffic operations to insure (1) maximum safety, (2) provision of adequate arrival and departure corridors, (3) coordination of other local air activities, (4) avoidance of populated areas and (5) pilot familiarity with operating procedures.

May 1958—CNO directed that non-tactical jet flights are not to be conducted on airways under Visual Flight Rules below 20,000 feet, except when climbing to or descending from cruising altitudes.

CNO directed that simulated instrument training flights in single-place aircraft and side-by-side configured aircraft would only be conducted when using helmet shields or eye visors which permit full visual control instantaneously.

June 1958—Military jet aircraft on itinerant or training flights are not to land at civil airports with certain exceptions (see CNO 032146Z, June 1958).

CNO promulgated information on the regulations establishing certain transcontinental positive control airways between 17,000 and 22,000 feet.

BuAer—On the basis of BuAer studies concerning lighting of aircraft and fluorescent painting, most naval aircraft are now equipped with rotating, flashing, anti-collision lights. . . . BuAer, in addition to the already implemented program of painting aircraft international orange and white, is also testing several conspicuous fluorescent aircraft paints designed to further enhance visibility. . . . Of great importance also is the project to improve cockpit visibility.

AN ATC CLEARANCE CAN BE FRIGHTENING!

WHILE this policy has obvious advantages, it has disadvantages in that it recognizes CAA as the controlling agency of the restricted area when in reality CAA has no capability to control the military activities being conducted but can only keep other airspace users out. Furthermore, the relatively large scale designation of part-time restricted areas is strongly opposed by civilian interests who do not want to be penalized in any form. They do, however, advocate the safety such a system would provide. But the trend is clear: greater joint utilization of airspace with other users. Navy commanders must keep requests for special use airspace to a minimum and cooperate with other airspace users.

With so many forces at work in areas that breed conflicts of interest, some one was needed with joint responsibility armed with authority to make decisions and to carry them out—in short, an airspace czar. It is against this background that the Federal Aviation Act of 1958 was passed on 23 August 1958. Known as Public Law 85-726, it supersedes the Civil Aeronautics Act of 1938, the Air Commerce Act of 1926, and the Airways Modernization Act of 1957. The law establishes a Federal Aviation Agency (FAA) into which will be consolidated the functions of the present CAA and the Airways Modernization Board (AMB), the air traffic rule and safety rule-making functions and the air space allocation function of the Civil Aeronautics Board (CAB), and certain air traffic control functions of the Department of Defense. Under the law the CAB still functions in the fields of present commercial aviation regulation and accident investigation.

The airspace czar, the Administrator of the FAA, will be the manager of the nation's Federal Airways, the writer of air traffic rules, and the manager of research and development for the nation's Common System of Air Traffic Control and Navigation. Under the new law, the FAA may well assume some of the ATC functions at Navy bases. The Navy feels that it should retain within the Navy the function of tower operations at Navy fields, the dividing line being that control of airspace (such as approach, departure, and enroute control) is an FAA function, whereas actual landing, take-off and taxiing are field functions.

The FAA is to be staffed by active duty military personnel as well as civilians. These military persons will not act as liaison officers or officially represent their services. The naval officers appointed will report directly to the FAA Administrator for their three-year tour of duty, as fully integrated "chiefs and Indians." The military will profit from the background and knowledge that such people bring to bear based on their experience in their service. The Navy must constantly keep the lines of communication open to its personnel in the FAA. We will be saying "We in the FAA do thus and so," rather than "Those misguided FAA people did thus and so."

Let's crystal-ball the future of "inner space." Present CAA plans indicate the eventual lowering of the Continental Control Area to 15,000 feet, and a new airway structure as follows:

1. Low altitude airways: ground to 15,000′ mean sea level, 10 miles wide.

2. Intermediate altitude airways: 15,000′ to 23,000′ MSL, 20 miles wide.

3. Jet routes: above 24,000′ MSL, 30 miles wide.

In addition, CAA presently plans to expand the "positive control" airways, and increase the effective altitudes. CAA plans to expand the high altitude jet route structure, lower the effective base from 27,000′ to 24,000′ and, within this structure, implement a network of *positive controlled* routes possibly between 27,000′ and 31,000′ as a starter. *Positive controlled* transition areas will probably be designated and positive control on an area basis will be attempted. The problem is how to do it without paralyzing military operations. In fact, owing to grave conflicts, radar control may have to substitute in part for this plan.

There will be further expansion of the common VORTAC system of navigation. For the uninitiated, VORTAC is not the scrambled version of *cavort*, but the co-location of the VHF, VOR and UHF TACAN with the distance measuring equipment of TACAN providing distance information for both civil and military use.

Still another trend—mandatory IFR operations! Probably all air traffic operations at 5000 feet and above will be on IFR as soon as feasible. Feasibility, of course, depends inevitably upon the capability of the controlling agency to handle the tremendously increased load.

There are still other actions the crystal gazer can see: flexible airways, phasing out of low frequency airways, standard traffic patterns for airports, expanded use of ground radar for air traffic control, anti-collision warning systems, automatic electronic flight data processing, mandatory use of luminescent paints, stricter regulations on the release of free balloons, and revised criteria for high density zones. Even "private citizens" will be prohibited from firing homemade rockets under certain conditions. "Free as air" is going to be a lost metaphor.

Of course, the most important development to watch will be the progress of the FAA. When, as the Congress intended, the FAA becomes a truly joint agency, we may reasonably expect sound airspace planning, increasingly efficient administration of the machinery of air traffic control, improved air safety, and equitable solutions to the varied military-civil airspace conflicts.

NAVAL AIR STATION NORFOLK

ONE OF THE NAVY'S oldest air stations celebrated its Fortieth Anniversary this year. In a period which saw the rapid rise and growth of military aviation forces throughout the world, this facility grew from a tent-housed service unit to one of the great airfields of the U. S. Navy.

Strategically located as a part of the huge Naval establishment at Norfolk, Virginia, long one of the Navy's principal service facilities, the Naval Air Station which opened its doors in 1918 with what would hardly be a token unit today, now has thousands of people at work.

On 27 August 1918, LCdr. Patrick N. L. Bellinger, later to advance to the rank of vice admiral, took command of NAS HAMPTON ROADS. (It was redesignated NAS NORFOLK in August 1932.) The installation consisted of seven seaplanes, six canvas tents and 143 acres. His command consisted of 30 officers, 90 aviation students, and 200 enlisted men. His air power—though power is hardly the word—finally reached a total of 21 aircraft.

Today personnel at NAS NORFOLK, both military and civilian, number 15,000 men and women who keep the 2150-acre installation in operation.

The roster of former commanding officers reads like a roll of honor for Naval Aviation. After LCdr. P. N. L. Bellinger's tour ended in March 1919, these officers, in order, succeeded to the command: Cdr. N. H. White, Jr., Capt. S. H. R. Doyle, Capt. H. E. Yarnell, Capt. H. C. Cocke, Cdr. A. C. Read, Capt. Ernest J. King, Capt. Kenneth Whiting, Capt. Aubrey W. Fitch, Capt. W. G. Child, Capt. J. H. Hoover, Bellinger again, Capt. C. A. Pownall, Capt. Gordon Rowe, Capt. E. Buckmaster, Capt. J. R. Tague, Capt. C. C. Champion, Capt. J. M. Shoemaker, Capt. M. R. Greer, Capt. G. L. Compo, RAdm. E. A. Cruise, Capt. G. A. Dussault, Capt. W. H. Hamilton, Capt. F. Lee, Capt. J. H. Flatley, and Capt. S. G. Mitchell. Capt. H. P. Burden is the present C.O.

From the time Ely made the first take-off from a ship in Hampton Roads, Navy and civilian leaders recognized the need for a center for aerial operations on the East Coast. The northeast corner of the Naval Base, a part of the 1907 Jamestown Exposition grounds, was selected.

During WW I, this area provided a base for operations and experimental work and was used by the antisubmarine patrols flown along the seaboard. The station also trained pilots and instructed sailors in the repair and maintenance of seaplanes. After the war, the small peacetime demands curtailed many aviation activities, but the Navy continued instruction in navigation, gunnery exercises and aerial bombing. Hampton Roads was the principal HTA station in the East.

In 1920 funds for a very important project were authorized. An arresting device was set up in 1921 to be used in training pilots for deck landings aboard the Navy's first aircraft carrier, the USS *Langley*. LCdr. G. deC. Chevalier, Lt. A. M. Pride and others worked out arresting gear and landing techniques using this special platform.

The station grew slowly. In 1930,

LCDR. P. N. L. BELLINGER, *later to be Vice Admiral, was the first Commanding Officer.*

THE ADMINISTRATION BUILDING *houses offices of the station and is the headquarters of Commander Naval Air Force, Atlantic. On a daily average, tower logs 400 take-offs and landings.*

THIS IS *the site of the original O&R. Land in the background, mostly marsh, has been filled in and is the location of the present runways.*

HERE IS *the station as it looks today, covering 2150 acres. Forty per cent of the land comprising the base was reclaimed, drained and filled.*

the new three-story administration building was completed, and new facilities were provided for the Assembly and Repair Department. The same year, the first group of civilian employees, numbering approximately 50, arrived for assignment to A&R.

Just before WW II, a vast land expansion and construction program began which brought the station to almost its modern size. The area was largely marsh land, but tremendous dredging and hydraulic fill work provided additional land for the operating area and the buildings that would be necessary for an enlarged facility.

By the time of the Pearl Harbor attack, the station was partially completed with a new landplane field, hangars, a seaplane operating base, new barracks, and new O&R and supply facilities. Air groups from famous Navy flattops—the *Wasp, Ranger, Yorktown,* and *Hornet*—trained at Norfolk.

Training units and flying operations taxed the capacity of the Air Station and outlying fields. Patrol planes operating from the station, protected the shipping lanes and provided convoy coverage in addition to regular anti-submarine patrols.

NAS NORFOLK has continued to progress, and today it is considered to be one of the largest self-contained communities in the world. There are approximately 35 operational aviation units located on the air station and the operations control tower at Chambers Field logs an average of more than 400 take-offs and landings each day. Each year workers in the gigantic Overhaul and Repair Department return to the Fleet hundreds of aircraft and engines completely overhauled and modified. Such work is vitally important in terms of stretching the defense dollar, for the cost of overhauling and repairing a plane is only a fraction of a replacement cost. A far cry from the original 21 seaplanes stationed there!

If "life begins at forty," NAS NORFOLK is more than ready to continue her mission in the next forty years.

CANVAS HANGARS *housed the Navy's aircraft back in 1918. Hangar area at the head of the old lagoon was site of the Jamestown Exposition.*

TODAY O&R *is a model of modern industry. Each year some 1500 aircraft and 2500 aircraft engines are completely overhauled or modified.*

IN-FLIGHT WX BRIEFING

"FLASH ADVISORY NUMBER TWO—*Line thunderstorms fifty miles wide from just south of Lexington, Nebraska to Hill City to Garden City at 1400Z—expected to move East at 35 knots during next few hours and reach the Lincoln, Salina, Hutchinson line by 1800Z—these thunderstorms will be locally severe with half-inch hail and severe turbulence.*"

Can you imagine the frantic grabbing for the RadFacs that would go on in a cockpit if you were flying in this general area and received this transmission? Any plane south of Sioux Falls, east of Denver, north of Oklahoma City or west of Kansas City would immediately begin revising flight plans to give the area a wide berth—or else!

Developed by the U. S. Weather Bureau, operational tests of an In-Flight Weather Safety Service Program were begun in March of 1957 to determine the feasibility and desirability of flight advisories for both military and civil aircraft. They were to cover potentially hazardous conditions such as tornadoes, hail, severe thunderstorm systems, dust storms, icing and major turbulance areas as well as extensive areas of low visibility and strong surface winds.

After considerable study on the results of the tests by members of the Weather Bureau, Naval Weather Service, Army Signal Corps, Air Weather Service, the Coast and the Civil Aeronautics Board, approval for full implementation was granted. A major factor considered by the committee was the favorable comments received from private, industrial and commercial pilots who had used the Flight Advisory Weather Service.

Flash advisories are now broadcast through Civil Aeronautics Administration ground stations. They give aircraft in flight up to two hours advance notice of areas in which hazardous conditions are expected to develop and the trends for an additional several hours. Prepared by the Weather Bureau Flight Advisory Weather Service Centers in the continental United States having area forecast responsibility, the advisories are designed to serve the needs of both civil and military aviation as a "common system" program.

Owing to the respective requirements of civil and military aviation, where all types of aircraft must be considered, no specific criteria have been established as to when to issue a Flash Advisory. The forecaster determines the necessity on the basis of meteorological data available and the operational requirements of the aircraft within this area.

The areal extent of the conditions expected to develop or in being is defined with reference to names of enroute radio aids to navigation or compulsory reporting points indicated in the Radio Facility Charts. Exceptions are made for cases of potentially hazardous weather that is widespread and more easily located for the pilot by reference to state boundaries or prominent geographical features, such as mountain ranges or lakes and rivers, or large cities.

The advisories are numbered serially by each originating office beginning with midnight of each day, local time. The succeeding advisory automatically cancels the preceding one. In cases where a potentially hazardous area develops in a second, distinctly separate sector within a FAWS area, a second series of advisories will be lettered serially, rather than being numbered.

Flash advisories are transmitted on CAA Service A, the circuit which transmits hourly aviation weather reports. Through Service A, the advisories are available to weather offices for preflight briefing and to CAA ground to air stations for transmission to aircraft in flight. They are distributed so as to reach all CAA ground-air stations within approximately 200 miles of the hazardous area. Through these stations, pilots who contact them are briefed on the expected conditions.

To aid in the successful continuation of this important advisory service, in-flight weather reports from pilots, particularly reports on indications of developing potentially hazardous weather, are most important. Comments and suggestions concerning the In-Flight Weather Safety Service should be sent to CNO (Op-58).

Thanksgiving Aboard Wasp

'Particularly Blessed' Five Months

The 400 officers and men of the USS *Wasp* held a ceremony of Thanksgiving while steaming home from a five-month deployment with the U. S. Sixth Fleet in the Mediterranean.

The ceremony, held on the hangar deck, 1200 miles from the U. S., was an expression of gratitude to Divine Providence for the blessings bestowed upon the crew during the five months of extensive operations. There were no fatal accidents, deaths or serious injuries during the cruise.

RAdm. E. A. Hannegan, ComCarDiv 14, whose flag flies from CVS-18, and Capt. E. H. C. Fredericks, carrier skipper took part in the ceremony conducted by LCdr. A. A. Volz, Chaplain.

SIXTEEN SAILORS *at NAAS Saufley Field were presented good conduct awards by Capt. Robert M. Ware, USN, at morning quarters. The recipients are, front row, l-r: R. T. Bonk, AD2; J. A. Wasconis, TD2; N. J. Heiland, AD2; D. K. Dewitt, AN; W. McPherson, ET2; J. Baranowski, AN; W. Gilfillen, ADR2; rear row, l-r: W. L. Frazier, AN; G. C. O'Neal, AN; C. Gagon, AN; T. Griffin, AN; J. Ellis, AN; S. Joshua, AN; I. Johnson, AN; J. Graham, AN; A. Bailey, AN.*

MarCads are to be Trained

Program Will Commence Next July

The Marine Corps will begin training its own Aviation Cadets in July. Since 1941, the Corps has acquired many of its trained pilots through the Navy's aviation cadet program.

The Marine Corps will start accepting applications January 1 for its program. Selected candidates will hold a special enlisted grade of "Marine Aviation Cadet" (MarCad) and will wear Marine Corps Officer-type uniforms.

Successful completion of the 18-months course at Pensacola will earn MarCads second lieutenant commissions. Plans call for 307 trainees to be phased in during the first year of the program. An initial group of 11 are scheduled to begin pre-flight training July 6, 1959.

To qualify as a MarCad, a candidate must be physically qualified male citizen of unquestioned moral integrity; be at least 18 and under 25 years old upon application; must have attended college for at least two years except in the case of enlisted Marines on active duty who qualify through examination; and be unmarried and agree to remain unmarried until commissioned.

He must also sign a contract to serve at least three years on active duty following completion of training; be highly motivated to fly; and must not have failed flight training previously because of deficiency.

AN A3D WAS FIRST JET TO LAND AT ROTA

Rota Becomes Operational

VP-5 Planes Come from Argentia

Aviation activities of the big Spanish American naval base under development at Rota, Spain, shifted to an operational footing when the last of a six-plane detachment of Navy P2V-5 *Neptunes*, skippered by Cdr. John W. Crowe, landed on the 12,000 foot airstrip.

The *Neptunes*, part of VP-5 at Argentia, marked the first combat aircraft to use Rota as a base. However, a Fleet Air Support Squadron 104 detachment from Port Lyautey had already set up shop to take over the servicing and maintenance of the patrol bombers.

A transient A3D *Skywarrior*, also from Morocco, was logged as the first jet to make an operational landing at the growing base. Piloted by Cdr. Robert B. Spark, the A3D dramatically displayed some of its capabilities.

Joint Design Competition

High Speed Missile Target Sought

The Navy and Air Force have announced a joint design competition for a low cost, high speed missile target.

The common requirement for an air launched, high altitude, expendable target for missile-firing fighter and interceptor aircraft started the search for a medium sized rocket or ramjet propelled target aircraft with short flight duration. Propulsion by air turbo rocket has also been considered. Unnamed target would provide suitable air-to-air missile firing practice for pilots and aircraft scheduled for operation in 1961. Navy use also envisions work with shipboard-launched guided missiles.

Indicative of inter-service coordination have been effective joint preparation in earliest planning stages and the assignment of BUAER and AF project officers to work on the project.

MAG-14 Claims 'First'

A4D-2 Pilots Get Buddy Check-out

Marine Aircraft Group 14, based at NAAS EDENTON, N.C., has laid claim to being the first group to qualify an entire squadron of A4D-2 *Skyhawk* jet bomber pilots in the "buddy system" fueling technique.

The first squadron to report full qualification was VMA-225, commanded by LtCol. A. R. Boag. MAG-14 is commanded by Col. J. R. Little.

FUTURISTIC COPTER SCHEDULED TO FLY IN '59

A CRANE helicopter capable of carrying six tons of cargo is under construction by Sikorsky Aircraft. It is scheduled to make its first flight early next year.

Designated S-60, the twin-engine aircraft is expected to prove useful in commercial and military operations. The flying crane will carry its cargo externally and will not have the conventional passenger or cargo cabin.

A new cockpit design will give the pilot a range of vision which is reported to be unprecedented in any other aircraft. A glass-enclosed cabin will provide unobstructed vision in any direction. The pilot's seat will swivel to the rear so he can obtain a clear view of loading and unloading operations. He will operate a separate set of controls and will be able to look almost directly down the hoist to the cargo. He will sit on the left; his copilot on the right of the cockpit.

Elimination of the big main cabin in favor of a tail boom paved the way for the rearward-facing feature and makes possible a lighter aircraft with greater payload. The S-60 will use components that were proved in the S-56.

A DOZEN ATTACK SQUADRON 35 SKYRAIDERS FLY OVER THE MEDITERRANEAN SEA DURING THE 1958 DEPLOYMENT ABOARD THE SARA

A VA-35 PILOT THINKS OUT LOUD

IT'S GOOD to be back in the USA but —what a cruise we had!

Why, do you realize that the good ole reliable AD-6's of Attack Squadron Thirty-Five were the first *Saratoga* aircraft to reach Lebanon during the crisis last July? Eight of 'em—and really ready—were launched from the Western Med right after the *Sara* got the word to head out of Cannes, France, *toute de suite*. We staged out of an airfield on Cyprus until our real home-away-from-home loomed on the horizon. All told, the Black Panthers flew more than 1300 hours on patrols, armed reconnaissance missions and furnishing close air support, in less than two months in the Middle East.

Those *Skyraiders* are jewels, and I'll just bet our jet cousins in Air Group Three have a new-found respect for the old *Spads*. We pioneered carrier-based in-flight refueling using AD's as tankers. More than 375 hours we were up there while *Cougars*, *Demons* and *Crusaders*, among others, guzzled from our spigots.

We cut the cake in more ways than one. During the eight-month deployment, ten 1000th landings were chalked up on the *Super Sara*. VA-35, never averse to getting in on a good thing, was helped along by a kindly Fate.

PANTHER HAS LONG BEEN VA-35'S SYMBOL

Cdr. Al Brown's boys hit the deck on an even thousand five times. The exec, LCdr. Barclay W. Smith, not content with merely being the first to do same, did it again. Hungry, I guess. Junior-type Lieutenants took care of the other three, Art Marks, Gordon Richardson and Wayne Fairbanks—to name names.

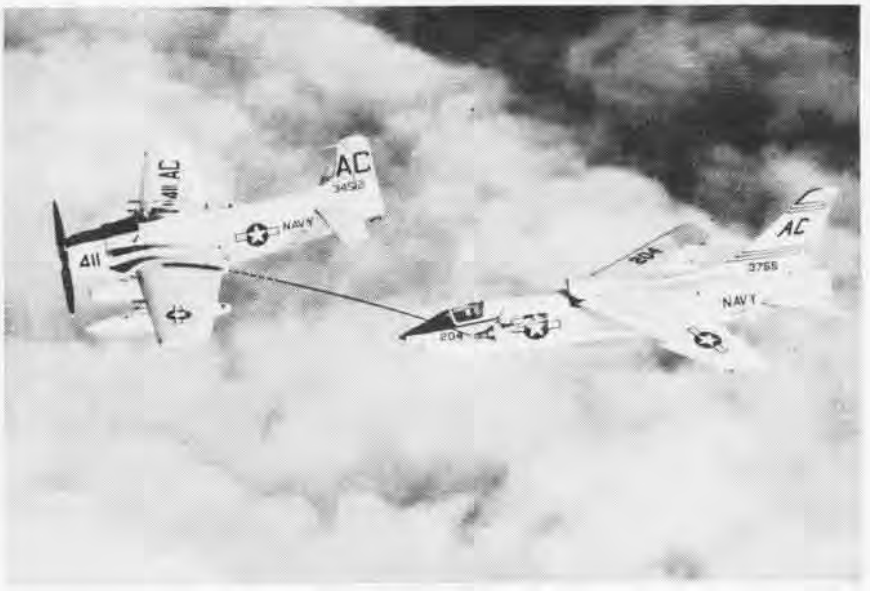
The rest of the lads weren't standing by idly, howe'er. Nineteen of the stalwarts joined the *Saratoga* Centurian Club—and you know what that means —each and every one was stopped by that wire at least a hundred times. Ltjg. Gary Jones was particularly eager in seeking membership. Why, in one month he flew more than 100 hours in hot pursuit of his goal.

If you're interested in statistics, I just happen to have some more handy. *Panther* pilots amassed over 2300 carrier landings, which ain't bad. Furthermore, over six zero zero zero hours—sans accidents — were logged. (For those of you who have never enjoyed a Paris liberty, *sans* means *without*.)

And speaking of those glorious ground-bound hours in port, let me tell you, skiing in the Alps is all it's cracked up to be. Seriously, the hundreds of folks we met in Barcelona, Naples, Genoa, Palma de Mallorca, Rome, Madrid, Brussels—all over—really gave us the red carpet treatment. On our part, we honestly tried to do right by the Person-to-Person Program.

But to get back in the air, we also had a chance to fly over Spain, Italy, Greece and Turkey during three massive NATO exercises. These really gave us a work-out. Vast numbers of eight to eleven-hour low level navigation sorties were flown. It seems as if we made hundreds of strikes against simulated targets in those NATO countries bordering the Med. We also did some international carrier hopping

THE SKIPPER IS CDR. ALFRED E. BROWN



A 1000-MPH-PLUS CRUSADER DRINKS FROM THE DROGUE OF VA-35 'SPAD' NUMBER 411

with the British *Ark Royal* and *Eagle*.

Looking back, it seems to me that August was one of our busiest months. We were in the wild blue 1290 hours and made 588 landings. However, I can't say we had any slow months.

Right here and now, though—and I'm speaking for all 22 pilots—I want to set the record straight. There would have been many lulls in our operations if it hadn't been for the outstanding work of the three ground officers and 112 men. Maintenance availability for the 16 planes averaged 93, that's NINE THREE, percent!

The Black Panthers of VA-35 have stopped prowling for a while, but we're by no means resting on our laurels here at Jax. Reorganization is in full swing and the training program is well underway. After all, we've got to keep up the old tradition and be ready for the next deployment.

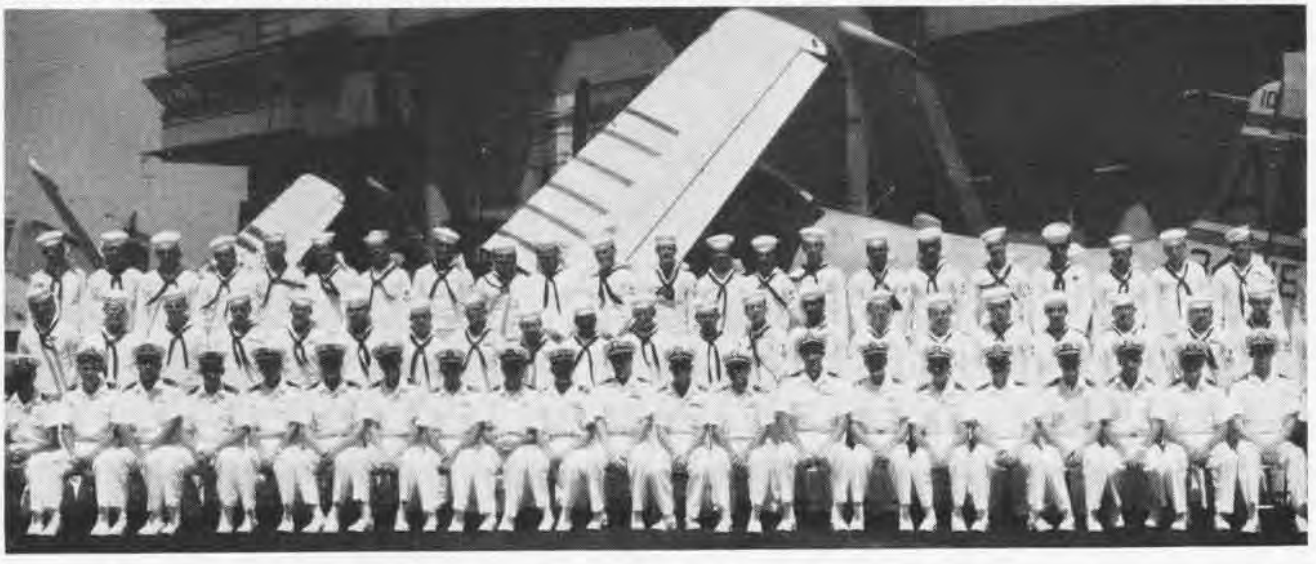
And take it from me, the tradition is old. I perused the available records and found that Attack Squadron Three Five is one of the oldest carrier squadrons in the USN. It was one of two squadrons especially formed at NAS NORFOLK to serve aboard the CV-4, better known as the *Ranger*, and the pride of the fleet of that day. VB-3B was the squadron designation; BG-1, the plane.

Interestingly enough the Panther squadron/*Saratoga* association dates back a good many years. As VB-3, it was officially assigned to the CV-3 on 1 July of 39, and throughout a large part of the big fracas, commonly referred to as WW II, the two operated together. What a combination!

Of course, we didn't do badly during the early part of the Korean go-round with the *Leyte* as our base of operations. By then we were VA-35 and flying the trusty AD. Coincidentally, the *Leyte* was in port at Beirut, Lebanon, in August 1950 when orders came for combat duty in Korea.

Lebanon. This is where I came in. It's good to be back in the U.S.A.

SHIPMATES PAUSE IN THEIR BUSY OPERATION SCHEDULE IN RHODES, GREECE, FOR SQUADRON PORTRAIT ON THE FLIGHT DECK



CRUSADER WINS VETERAN STATUS

THE F8U-1 *Crusader* has returned from its first full-scale deployment a thoroughly-tested carrier veteran.

The "Sonic Swordsmen" of Fighter Squadron 32 put the world's fastest operational Navy fighter through a tough 8-month duty tour at sea. They capped off their Mediterranean cruise aboard the USS *Saratoga* during the powder-keg Lebanon crisis and, in the closing months, recorded more flight hours than any other fighter or light attack squadron aboard.

They took the aircraft through strafing and rocketry runs, long hours of target and Fleet combat air patrol and the repeated punishment of catapult shots and arrested landings. When the cruise report was completed, it listed nearly 3000 flight hours.

It was natural that VF-32 should come in for close scrutiny on the cruise. The Cecil Field unit was the first operational Navy squadron to make the conversion to the F8U and the first to put the F8U to actual use at sea.

Chance Vought engineers had solved the problem of landing on a carrier with a unique two-position wing which could be raised for low speed flight required for takeoffs and landings and lowered into its natural position for high speed operation.

This design was instrumental in winning for the Navy and Chance Vought the Collier Trophy awarded annually for the "greatest achievement in aviation in America" and in gaining for Vought the first Navy Certificate of Merit awarded by the Bureau of Aeronautics.

The aircraft also had established an international reputation for speed. In 1956 it set the first Thompson Trophy national speed record in excess of 1000 miles an hour. The following year it made the first supersonic transcontinental flight in history.

Cdr. Gordon C. "Buck" Buhrer, skipper of VF-32, said its great speed and altitude capability, in combination with its extremely long range, put the *Crusader* in a class by itself. He added, "The most remarkable thing about the aircraft is that it is such a tremendous step ahead and yet needs no favors. It simply takes its turn and does its job."

VF-32 FLEW 730 SORTIES—ABOUT TWO HOURS EACH—IN SUPPORT OF THE OPERATIONS

The greatest test for VF-32 came with the crisis in Lebanon. One of the *Crusaders'* first missions was part of an aerial show of strength. Streaking at relatively low altitudes, VF-32 pilots took an 11-plane formation over Lebanon and down the Jordan River valley to Jordan. Before Lebanon was over VF-32 pilots were to know Biblical areas such as the Sea of Galilee, the River Jordan and the Red Sea almost as well as the environs of their own Cecil Field. There was little doubt the *Sara* made her presence felt.

Lebanon missions consisted of combat air patrol over land targets and the Fleet, tactics, escort and observation. Flight hours for the speedy fighter, previously below the 500-mark each month, jumped to 553 in July and 762 in a 23-day operating period in August.

Directly in support of Lebanon, VF-32 flew 287 missions in July, 398 in August and 45 in September. These brought the total number of sorties for the three months to 312 in July, 433 in August and 168 in September.

CAP flights over troubled countries meant repeated chases on unidentified aircraft. *Crusaders* would be vectored in by radar on a flying target, only to find the quarry was a harmless airliner. The pilots would get close enough to get the aircraft number, report, and be on their way again, waiting for another "intercept." "We made so many runs on airliners we got to know if they were meeting their time schedules," Cdr. Buhrer commented.

Airliners were not the only aircraft encountered in connection with the Lebanon operation. British Hawker *Hunters* were operating off nearby Cyprus. *Crusader* pilots would have their radar controllers vector them toward the British planes near the island, and *Hunter* pilots would ask the same favor of their own controllers.

The *Saratoga* slipped out of her berth at Mayport, Florida, on February 1, to make her maiden voyage to the Mediterranean and join the Sixth Fleet. Aboard her was what has been described as the most powerful aerial striking force ever assembled on a carrier—Air Group Three (see inside back cover for units).

Delivery by transatlantic flight of four *Crusaders* in Operation *Pipeline* occurred in May. The aircraft flown by VX-3 pilots took off from Oceana, Va., on the first leg of a flight that took them to the *Saratoga* by way of Brunswick, Maine; Argentia, Newfoundland; the Azores; Port Lyautey, Morocco; and then to the carrier in the Mediterranean some 1100 miles from Morocco. Also making the trail blaz-

ing flight were four F3H *Demon* jets.

Past practice had been to load replacement aircraft aboard a small carrier which would deliver them to Port Lyautey, a procedure which usually took more than a month. The new method required only a few days.

Shortly after takeoff on their longest leg—the 1525-mile over-water trip from Newfoundland to the Azores—the planes were topped off from AJ aerial tanker planes. Other legs to Port Lyautey were accomplished easily on the *Crusader's* internal fuel supply.

At Port Lyautey four members of VF-32—LCdr. John B. Stetson, Lt. Howard Rutledge, Lt. David D. "Dog" Davison and Ltjg. Charles T. Lusk—picked up the *Crusaders* and, after topping off their fuel supply near Morocco, flew to the carrier.

In July, a similar flight was made alone by two VF-174-piloted *Crusaders* which had been ferried from Cecil Field to Quonset Point for the long hop over a large portion of the globe. Leaving Quonset July 22, the aircraft reached Naples July 24 and were delivered aboard the carrier from Suda Bay by LCdr. Roy Johnson and Ltjg. Larry C. Wiggins the following day. As before, the aircraft arrived in excellent condition after a flight which chopped weeks of delivery time to three days.

In addition to the thousands who saw the *Saratoga's* mighty aerial force at various ports of call, throngs of visitors to the World's Fair at Brussels viewed a representative group of the carrier's aircraft. Dispatched by the *Sara* were *Crusaders*, A3D's, A4D's, F3H's and AD's. In each type aircraft, one did flybys while the other was put on static display.

During the cruise every pilot of VF-32 became a member of the *Saratoga's* Century Club by virtue of making 100 landings aboard the carrier. First to make 100 landings in the *Crusader* was Cdr. Buhrer, who had headed a team of squadron pilots taking part in the FIP program at the Naval Air Test Center at Patuxent River, Maryland, before the squadron received its F8U's.

ASIDE from the F8U's outstanding speed and altitude capabilities, the feature which impressed VF-32 pilots most was the aircraft's ability to turn in good performance for more than two hours without getting into a fuel bind. The aircraft would run continuous intercepts at 40,000 to 45,000 feet, use afterburner on several runs, and still get into the pattern after nearly two hours with approximately 2,000 pounds of fuel.

On combat air patrol missions *Crusaders* would launch from the flight deck and be above 40,000 feet in less than five minutes, ready to intercept incoming aircraft. They could operate hundreds of miles from the Fleet and still get back with plenty of fuel.

Capt. Ken Davison, an Air Force exchange pilot said, "As far as flying carrier-based aircraft and operating off a ship are concerned, I felt things worked out very well. I had no problems on landings and felt the aircraft was relatively easy to land, either day or night. The range is outstanding—better than anything I've ever flown."

Capt. Davison said the aircraft went off the catapult fine and started climbing immediately without sinking, a feature he liked particularly well.

Ltjg. Harry J. Smith was one of several VF-32 pilots who had never made a jet carrier landing until he did so in a *Crusader*. "It was no problem," he said. "Once you get to know it, it works fine and there's no reason any pilot should have difficulty."

Although VF-32 led in flight hours in the closing months of the cruise, the squadron had a somewhat discouraging beginning. Hardly had the *Saratoga* pulled out on February 1 when corrosion was discovered in a few magnesium areas of the air duct and lower nose cone section. The word was flashed back to BUAER and Chance Vought in Dallas.

The "cure" worked out by BUAER and Chance Vought proved satisfactory, and by March 12, the fix was complete.

Almost as soon as the corrosion problem was brought under control, another problem arose. The landing gear which had withstood countless landings on concrete runways had to be further strengthened to meet the many variables of carrier landings.

On April 2 the *Saratoga* had received its first kit designed to strengthen the gear and increase the max. sink rate.

AT CANNES, FRANCE, WHEN LEBANON CONFLICT OPENED, SARATOGA DEPARTED HASTILY FOR RENDEZVOUS WITH THE SIXTH FLEET

A CRUSADER FROM USS SARATOGA'S VF-32 FLIES A PATROL OVER BEIRUT, LEBANON

PROMPT ENGINEERING and manufacturing efforts paid off handsomely. Although VF-32 made a total of more than 1425 arrested landings from the time the fix was incorporated to the end of the cruise, it experienced not a single main gear structural problem.

It was not until after the *Saratoga* had been replaced in the Mediterranean Fleet by the USS *Forrestal* in mid-September that VF-32 came close to losing one of its pilots. The ship was approximately 500 miles northwest of the Azores when the deck became fouled for 40 minutes. Ironically, it was a piece of emergency deck equipment which refused to steer properly that prevented clearing the flight deck with the customary dispatch.

The *Crusaders*, by virtue of their long range are customarily the last of the jets to land. They were aloft and, as time wore on, had no place to go. Lt. Phillips began to run low on fuel. He tried an unsuccessful rendezvous with an AD tanker. About 50 miles from the carrier, he ran out of fuel.

He made a smooth ejection and soon was fighting high seas and a stiff wind in his tiny life raft. Several times aircraft came close, but not close enough. Dye markers and flares failed to attract their attention. Then as he had resigned himself to spending the night in the raft, an AD pilot spotted him and waggled his wings in recognition.

Two hours after he had hit the water a destroyer arrived. LCdr. H. Langdon Smith, executive officer of the USS *Stribling*, went into the water to help bring the tired pilot aboard. VF-32 was on its way back with all its pilots.

From the February 1 departure date until VF-32 landed its *Crusaders* at Cecil Field September 30, the aircraft flew a total of 1653 sorties and amassed a total of 2875 flight hours.

The squadron fired 3449 rockets and 32,643 rounds of ammunition, mostly in demonstration before NATO officials and visiting royalty, all with good results. The number of bolters decreased from 27 in 146 landings for March to 25 in 433 landings for August.

"Never did our difficulties dampen anyone's enthusiasm for the bird in the slightest," one officer commented. "From the World's Fair at Brussels to the Jordan River valley and the mountains of Lebanon, the *Crusader* has shown itself to be the finest naval fighter in the world today," the squadron *Newsletter* stated.

Cdr. R. H. Mills, commander of Carrier Air Group Three, described the *Crusader* as a "real going bird" and said the pilots could really make it fly. "It has no maintenance problems that can't be handled and with the knowledge picked up on the cruise future deployments should be even better. The airplane worked in excellent fashion. It would make flights and then turn around and keep going."

With the *Crusader*, and other types of high performance aircraft, the Navy began operating a new generation of fighters. "To the many who had watched the development of the Navy's first 1000 mph-plus fighter, the actual cruise in operational status was the test," VF-32 officers pointed out.

For VF-32 the cruise meant pioneering a new age of Navy flight. VF-32 proved the Navy was over the hurdle toward higher performance carrier-based aircraft of the future—the Mach 2-plus, all-weather, all-missile plane.

EACH OF THESE TEN VF-32 PILOTS HIT 100 MARK TO TOTAL 1000 LANDINGS ON SARA

RENOWNED RESERVIST RETIRES

On 27 April 1917, a young Washingtonian raised his right hand and was welcomed by the Navy as a "landsman for seaman (aviation)"—a rate long since gone by the boards. His objective was to become a pilot in a new flying branch of the Navy.

Forty-one years later, as he prepares to retire, Captain Alvin O. Preil, USNR, Coordinator, Naval Air Reserve, can look back on a distinguished career which has paralleled a goodly portion of the history of this branch.

BOMBS STRADDLE TARGET 'OSTFRIESLAND'

He points out that the names of many of his contemporaries in the "bailing wire and glue" era today grace Naval Air Stations: Cecil, Mitscher, Chevalier and Saufley.

Designated Naval Aviator #538 on 11 March 1918, Capt. Preil recalled that he launched his instructor career as a seaman, second class, wings and all. It wasn't until his 21st birthday, some two months later, that he was commissioned an ensign and "gained entry to the local O-club."

"In the days of the N-9, HS, H-16 and NC-4," Capt. Preil said, "the ground types thought we were either damned fools or crazy. We thought we were both."

Ordered to the Northern Bombing Squadron based at Dunkirk, France, in November 1918, he never saw combat action because of the Armistice. He was thereafter reassigned to NAS PENSACOLA as an instructor. There he trained flight students who were later to fly high in Naval Aviation. They were Lieutenants Arthur W. Radford, Felix Stump, Cal Durgin and others.

After the Pensacola stint, Capt. Preil became a charter member of the Navy Air's first torpedo tossers—Atlantic Fleet Torpedo Squadron #1 based at Yorktown, Va. This tour of duty, which included live drops of 1000 lb. bombs and use of the Norden bombsight, paved the way for an unusual undertaking in the spring of 1921.

ENDS 41 YEARS IN NAVAL AIR RESERVE

An experienced bomber pilot with specialized training in aerial ordnance, Ltjg. Preil was chosen to participate in a joint Army-Navy project, reporting to Col. Billy Mitchell. The project, echoes of which reverberate to this day, involved the aerial bombing of the captured German battleship, *Ostfriesland*.

After being released to inactive duty in 1922, Capt. Preil was employed by the Airways Division of the Bureau of Lightships (forerunner of the Civil Aeronautics Administration). As a pilot and technician, he had a major role in the development of radio ranges and the airways system throughout the United States.

Recalled to active duty in 1942 as a Lieutenant Commander, he was assigned to CNO, and later, as assistant Operations Officer on the staff of CarDiv 22 participated in the Manus and New Guinea operations. While on duty in CNO and BUAER, he received the Legion of Merit.

Following a second release from active duty, he returned again to duty in 1947 serving successive tours in BUAER, BUPERS and as Commanding Officer, NARTU, NORFOLK, Virginia.

As one of the Navy's pioneer Weekend Warriors—he became an Organized Air Reservist in 1922—Capt. Preil was preeminently qualified for and personally dedicated to his present and final assignment in CNO as Coordinator, Naval Air Reserve.

Capt. Preil says, "Few men have had the opportunity of choosing a career which traces revolutionary changes such as we have seen in Naval Aviation. I consider myself fortunate indeed to have been a part of the program."

Till Last Prop Has Stopped

VP-2 Dresses Ramp for Safety

Jets, rockets, missiles and other space sleds may someday replace the need for the sturdy old prop jobs, but as long as the conventional meat grinder is tied to a rotating shaft, there is cause for continuing caution.

With this in mind, Whidbey Island's Patrol Squadron Two has devised a unique and useful safety reminder to acquaint local ramp personnel with the danger of a turning propeller.

Brilliant elliptical patterns, outlining the prop hazard areas of the squadron's P2V-7 *Neptunes*, have been painted on the parking apron. The color scheme of alternating bright red and yellow stripes are equally eye-catching at night. The patterns indicate the area of the danger zone around the prop's radius of travel when the nose wheel of the *Neptune* is in its parked position.

According to VP-2, painted areas have proved exceptionally effective. Personnel find it impossible to approach prop danger area without giving instant consideration to reason for warning and becoming aware of the necessity to "keep clear of the propellers."

DUAL PATTERN MARKS THE DANGER ZONES

MINNEAPOLIS SETS NEW HIGH

FOR THE THIRD consecutive year, NAS MINNEAPOLIS has proved to be the most proficient of the 22 activities that make up the Naval Air Reserve Training Command by winning the Edwin Francis Conway Trophy. As a result of the fiscal 1958 competition, the station became the only five-time winner as well as the only one ever to receive the cup three years in a row. Minneapolis was rated number one in 1948, 1954, 1956, 1957, and 1958.

The trophy is one of the oldest awards for aviation achievement in this country. It was presented anonymously to the Navy in 1935 in honor of Lt. Conway, commanding officer of Floyd Bennett Field in New York, who was killed in a plane crash in 1933. The award was discontinued during WW II while the reserve forces were activated and integrated with the regulars. However, during peacetime it has been the object of extreme competition since its establishment.

In addition to the Conway Trophy, five squadrons at the station received Noel Davis awards, marking the first year that so many were presented to units at one activity. A Davis Trophy is given each year to the outstanding squadron of its type in the Naval Air Reserve.

Harry Guggenheim, a former Naval Reserve aviator, donated the trophy to the Navy in 1927, in memory of LCdr. Noel Davis, killed as he prepared for a Transatlantic flight. Inspections and examinations of operational records during the competitive year determine which squadron of each of 11 types will receive the award.

Eight of the categories are represented at NAS MINNEAPOLIS. The high state of training there is demonstrated by the fact that of 19 squadrons eligible to compete, 16 of them placed in the five top spots of their groups, a record that is hard to beat.

NAS MINNEAPOLIS was commanded by the late Capt. Frank F. Gill from the start of FY 1958 until Capt. Edward M. Morgan took over 20 Sept.

NOEL DAVIS WINNERS—1958

STATION	SQUADRON	COMMANDING OFFICER
NAS Minneapolis	VA-813*	*LCdr. L. J. A. Rasmussen* *LCdr. C. C. Zuel*
	VF-812	*LCdr. A. L. Kane* *LCdr. M. A. Halweg*
	VP-814*	*Cdr. M. F. Carpenter*
	VP FASRON-816	*Cdr. J. F. Bachmeier*
	HU-811	*LCdr. G. L. Strommen*
NAS Oakland	VS-872***	*LCdr. L. Richards*
	ZP-871**	*Cdr. R. P. Emmons* *Cdr. W. L. Boehrs*
NAS Glenview	AWS-72	*Cdr. R. K. West* *Cdr. H. W. Sumi*
NAS Dallas	AGU-701	*Cdr. G. A. Stevens*
NAS Los Alamitos	BARTU-776*	*Cdr. B. C. Ames*
NARTU Anacostia	VR-662	*Cdr. G. W. Brown, Jr.*

*Second consecutive, **3rd consecutive, and ***4th consecutive award.

CNO Safety Award Winners

The Naval and Marine Air Reserve contributed substantially to the safest year yet in Naval Aviation history. In announcing the Chief of Naval Operations Safety Award winners for fiscal 1958, VAdm. R. B. Pirie, DCNO (Air) said: "We were able to lower the major accident rate to a new low of 2.8 per ten thousand flight hours. This was due to an all hands effort and in particular to the efforts of the personnel in the award winning units".

The Reserve squadrons who received the awards are listed here with their commanding officers: VS-661, Cdr. W. A. Behr, NARTU ANACOSTIA; VP-713, Cdr. J. D. Moyers, NAS DENVER; VA-741, Cdr. H. J. Myers, NARTU JACKSONVILLE; VF-725, Cdr. L. F. Berkebile, NAS GLENVIEW; VR-692, Cdr. W. L. Paris, NAS COLUMBUS; HS-891, LCdr. A. R. Caldwell, NAS SEATTLE; VMF-141, LCol. J. A. Leckie, NAS OAKLAND; VMA-216, LCol. R. N. Rinabarger, NAS SEATTLE.

The competition is run among units of the same type operating similar aircraft and flying parallel missions.

CNATRA Trophy Awarded

The Chief of Naval Air Training Trophy, awarded to the unit showing the most improvement during the past fiscal year, was given to the Naval Air Reserve Training Unit, Anacostia, Washington, D. C., commanded by Capt. James A. Masterson. Capt. L. E. Harmon was commanding officer there from 1 July 1957 to 27 June 1958.

One Million Miles Per Hour

Expert Plugs 'Thinking Environment'

Providing space fliers of the future with a tolerable or survivable environment will not be enough, according to a scientist of the Douglas Aircraft Company. Science must also give him a "thinking environment" so that he can comprehend and transmit his findings back to Earth.

A. M. Mayo, chief equipment and safety research engineer at the El Segundo, Calif., Division of Douglas, said problems of confinement, weightlessness and other deteriorations which environment may cause would reduce man's equilibrium. In addition to available rotation methods, artificial gravity may someday be provided by a "constant thrust accleration" of one G (man's normal weight on Earth).

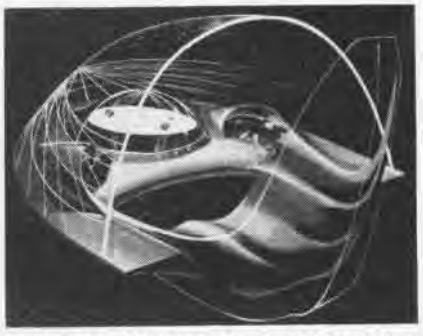
Promising research, he disclosed, could conceivably result in high impulse engines utilizing thermonuclear power and magneto-hydrodynamic propulsion. Mayo pointed out that such a propulsion system would provide continuous direct thrust for extended periods and would reduce drastically the flight time necessary for interplanetary trips.

Although a minimum-energy round trip to Mars, including the necessary waiting time at Mars for optimum orbital conditions, is about 970 days, a round trip employing a constant acceleration and deceleration force of one G would require only 4½ days. Average speed would be nearly one million miles per hour, according to Mayo.

Automation, he indicated, will relieve the pilot of many routine manual duties, but there will be an increasing need for "clear human thinking" to correlate data, make decisions and reprogram accordingly, as well as to take control in an emergency and make repairs in flight.

Among the problems to be solved if man is to be provided with an Earth-like environment on outer space excursions are radiation, temperature, acceleration, noise and vibrations, meteoroids and space debris, internal atmosphere, and food and water supply.

In a speculative design of a space ship cabin, the control station presents orientation, director and quantitative data on a main display; spatial orientation on an earth-like plain surface; and situation information on a display.



SCIENTIST'S CONCEPT OF A SPACE CABIN

Squadron Wins Navy 'E'

Annual Award Received by VP-16

In a formal ceremony at NAS JACKSONVILLE, Capt. D. E. MacIntosh, Commander Fleet Air Wing Eleven, presented the coveted "E" to Patrol Squadron 18. The annual award for excellence in the fields of operational readiness, administrative and competitive exercises was won in competition with Atlantic Fleet Squadrons of the same type.

Cdr. Curtis J. Zane, C.O. of VP-18 accepted the award for the squadron.

Calorie-less Cake Baked

5000 Pounds Lost Aboard Saratoga

A "no calorie" cake was baked aboard USS *Saratoga* to celebrate the 5000th pound of excess weight lost by the Fat Men's Club composed of overweight officers and men of the ship's crew and the embarked air group.

When Capt. J. A. Moore, ship's senior medical officer, began to cut the cake he was surprised. Beneath the frosting there was plain cardboard.

SHIP'S DOCTOR CUTS 'NO CALORIE' CAKE

THE SILENT SERVICE . . .

Is usually associated with the submarine branch of the U. S. Navy. Let's not confuse things! You have a story that deserves better than the silent treatment. You tell it to the whole of Navy Air when you send it to Naval Aviation News. That way you really beat the drum.

Your squadron is news. So is your ship. That incident that made conversation in the wardroom and mess compartment might be a feature story in the News.

Break a record? Dream up a new one? Invent a new gimmick? Fire it in our direction.

Naval Aviation News is the monthly chronicle of Naval Air. Send your story and pictures directly to

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Chaplain Makes 6th Jump

Prepares for Antarctic Assignment

Lt. Edward P. Hammond, Chaplain Corps, has completed his sixth parachute jump at the Parachute Rigger's School, Lakehurst, and earned the designation of Naval Parachutist.

He is the fourth Navy chaplain to be so designated in the school's 34 years of operation. Chaplain Hammond is a volunteer for Operation *Deep Freeze* and is going to the South Pole.

Navy to Construct Plant

Will Provide Polaris Assembly

Congressional and Presidential approval has been given for the construction of a $10,000,000 *Polaris* missile assembly facility at the Naval Ammunition Depot, Charleston, S. C.

Construction of several operating buildings is starting now and will be completed in approximately 16 months.

The facility will be located at the former Army Ammunition Storage, now known as the "Liberty Hall Annex," of the Ammunition Depot.

SGTS. DAIGLE, VOGEL, AND MOORE WITH REWIND STAND DESIGNED BY VMF(AW)-114

IDEA BEATS TOW PROBLEM

ELIMINATION of a time-consuming, costly procedure has been accomplished by Marine All-Weather Fighter Squadron 114, MCAS CHERRY POINT, through the resourcefulness of SSgt. Robert L. Moore, squadron ordnance shop chief.

Sergeant Moore constructed a rewind stand for the Del Mar Reel used on the squadron's F4D *Skyray* jets for towing air-to-air rocketry targets.

The rewind stand designed by Sgt. Moore accomplishes a job that previously was done only at NATC PATUXENT RIVER, Md., or Eglin AFB, Florida. It is estimated by VMF(AW)-114 that since July 1 the rewind stand has saved the government at least five to ten thousand dollars in rewinding operations, duplicating the performance of commercial models which cost from eight to ten thousand dollars.

The Del Mar Reel, when used in air to air rocketry, is slung beneath the aircraft which plays out up to 20,000 feet of piano-type wire. At the end of the wire is a nine-foot radar reflecting target which resembles a tip tank and weighs 25 pounds.

In the past, whenever the tow line became broken, the Del Mar Reel was flown to Eglin Field or Patuxent River, the two places on the East Coast possessing a rewind stand. This necessitated using two aircraft, an F4D to deliver the reel and a cargo type plane to deliver the spool of wire.

The high cost of a commercial model of the rewind stand precluded the squadron from purchasing one, so with the help of Technical Sergeants Jerrell J. Daigle and Ottie B. Deane, NCO and Assistant NCO in charge of the squadron ordnance shop, Sgt. Moore set to work constructing a rewind stand from two-by-fours and other discarded lumber.

After a week of planning, construction and reconstruction, the wooden rewind stand was completed. It satisfactorily rewound the Del Mar Reels, but during the rewinding process vibrations caused the bolts holding down the stand to pull through the two-by-fours.

Taking the problem to the Headquarters and Maintenance Squadron 24 Metal Shop, Sgt. Moore asked MSgt. Eugene J. Sawchuck, NCO in charge, if it would be possible to construct a metal rewind stand from the design and specifications of the wooden model. Three days later the metalsmiths and welders completed the metal model.

Since July 1, Sgt. Moore has rewound ten Del Mar Reels for his squadron on the steel rewind stand. Two men operate the rig; one attends the spool of wire while another operates the motor which supplies power.

Two men can rewind 11,000 feet of wire in 25 to 30 minutes with Sgt. Moore's rewind stand; a substantial saving in time and money over the usual two days it took to have the Del Mar Reels delivered, rewound and returned from Eglin or Patuxent River.

Plans for the rewind stand are being made available to other squadrons of the Second Marine Aircraft Wing.

Marlin Saved in Storm

ATU-501 Quintet Displays Bravery

Five members of ATU-501 at NAS CORPUS CHRISTI have been cited for saving a $2-million aircraft during extremely hazardous weather conditions. They are Robert C. Edge, ADC, John W. Gilmore, AD1, George Mauher, ADC, Arthur W. Olds, ADC, and Manuel Rios, AD2.

ATU-501 had evacuated its own aircraft as a hurricane bore down on Corpus when it was learned that a transient ferry flight of one P5M *Marlin* was coming in from Baltimore on its way to San Diego. With the hurricane closing in fast and the seadrome already too rough for ramping aircraft, things looked grim for the incoming plane.

After landing about 8 p.m., the crew of the P5M was able to get the two side mounts on the aircraft but could not secure the tail beaching gear. The P5M spent the rest of the night bobbing on the heavy swells.

Next morning, after many futile attempts by the crew to secure the tail gear, the only decision seemed to be to run the aircraft aground, fill the bilges with water, and hope for the best.

Then Chief Edge asked permission for the five men to try to beach the P5M. Rios went first through the water, hand over hand on a line to the aircraft, where he would remain to assist from inside. Then Edge and Gilmore went out the same way with a tail mount. They found that the gear was mechanically defective, so they returned the gear to the beach and Olds and Mauher went out to try with a second piece of gear.

After laboring in the heavy seas about 15 minutes, they discovered that the aircraft was so badly damaged the tail gear would not fit. They made a jury rig which allowed the aircraft to be beached successfully.

When the dangerous operation was completed successfully, Rios said he had lost a good ten cent cigar. Edge and Gilmore thought they had swallowed enough water to float the P5M.

● The only airship lost in enemy action during WW II was the K-74. While on night patrol in the Caribbean, the airship detected a surfaced enemy submarine and went in to attack. In the duel that followed, the big airship was fatally hit and brought down.

PUSH-BUTTON NAVIGATION

A PUSH-BUTTON navigation system which will guide helicopter pilots to a series of targets and always "remember" the way back to a ship or base has been developed for the Navy by Sperry Gyroscope Company.

Using a lightweight airborne computer and a single pictorial cockpit indicator, the helicopter pilot will be able to skip randomly but accurately to a series of unmarked locations. The electronic device will direct him on a straight-line return to his mobile base.

The equipment rejects all but the most accurate navigation information. It selects automatically the most reliable data, either radar or radio signals or the latest correct air mass information.

The system provides the precision required for anti-submarine screening and killer missions, a Sperry spokesman said. Its development means that the pilot can be a true "manager." The system frees him from difficult mental calculations and enables him to devote his full attention to flying the helicopter and fulfilling the mission.

The system operates automatically. Before the flight, the pilot sets target, base and wind information into windows on the face of the computer. At takeoff he presses a button, activating the computer which drives a Compass Pictorial Displacement Indicator.

The pilot maneuvers his aircraft to follow a "V" bar on the indicator which points out target direction. A counter similar to an automobile mileage indicator shows continuously the exact distance to the target.

The pilot can set in new or alternate destinations at will. Versatility of the system enables him to eliminate a destination, change the order of destinations and, in the event of an emergency, cancel his pre-set flight path and return to base.

Weighing 25 pounds, the computer uses Doppler radar data and, when available, TACAN radio signals to provide precise guidance. It also continuously computes and displays correct wind information.

If Doppler signals are unreliable, the computer disregards them automatically and functions on air mass data alone. It accomplishes this by using the last accurate wind information retained by its "memory" system.

COCKPIT INDICATOR 'POINTS' TO TARGET

Automatic computer circuits enable the system to make corrections in air mass data from radio signals, even if sporadic, then fly a course based on the corrected information until further radio guidance is received. In addition to providing precise guidance to the target the Compass Pictorial Displacement Indicator shows magnetic course and bearings to ground radio facilities.

It provides a continuous pictorial situation report on the aircraft's position and flight path.

Bearing and distance information is furnished either in relation to the base or to an earth coordinate system, depending on mission requirements. One Navy mission might require search or rescue on specific areas of the ocean surface. Navigation in this case will be accomplished by using standard chart data.

Another mission might require patrolling an area a fixed distance ahead of a moving vessel. The system's "point of view" is different in each instance but it performs both missions with ease and precision.

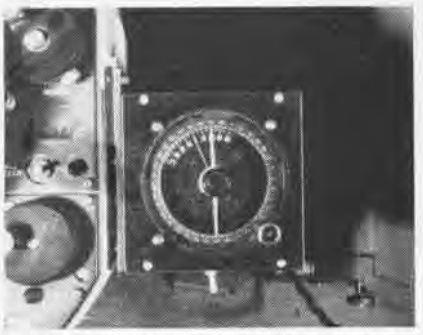
The equipment can also be coupled to an automatic pilot or flight director system when still higher degrees of flight automation are required.

A New GCI 'Gadget' Provides Pilot Accurate Data

High altitude, high speed fighter pilots need precision GCI information, and the Naval Air Missile Test Center has done something about it.

It is the opinion of many pilots and controllers that "clock code" is obsolete in high altitude and high speed work. According to LCdr. Harold J. Cartwright, Tracking-Control Officer, Range Operations Department at Point Mugu, Calif., there is no known A-1 radar calibrated in "clock code." The procedure of the controller guesstimating a "clock code" position of a target is obsolete and too often inaccurate.

NAMTC has developed an angle off-bearing (magnetic) indicator to provide the GCI controller with accurate information to give the intercept pilot, thus eliminating the guess work in calculating vectors, clock code and bearings.



INDICATOR SHOWS THE COURSE DEVIATION

The angle off-bearing indicator is an indirectly lighted indicator consisting of a scale calibrated in degrees and a pointer connected to an IF selsyn motor. The selsyn motor is electrically connected to the 6G selsyn generator which is geared to the mechanical and electronic bearing cursor in the AN/SPA-8A indicator. The IF selsyn motor is set to give magnetic bearing, rather than true bearing which is still available on the Veeder Root counter.

The GCI controller operates with the off-center cursor origin on his interceptor, the cursor and range strobe on the target. Then the controller dials in the interceptor heading. By moving the cursor on each sweep, he has accurate angle off and magnetic bearing to the target.

Controllers at NAMTC have found this locally developed "gadget" so handy that is is used on all intercept work there. Personnel who have used the indicator are wondering why they haven't had something like this for years.

● Exactly four hours after Los Angeles newspapers were put aboard two Douglas jet A3D bombers, they were delivered to the USS *Forrestal* cruising off the coast of Florida in the Atlantic some 2365 miles from Los Angeles.

NANEWS INDEX JAN. TO DEC. INCLUSIVE 1958

CDR. R. D. KING, *standing in front of an A4D-2, commands Fleet Air Gunnery Unit Pacific, the outfit which flies some of fleet's most modern aircraft; F8U-1 Crusaders, F4D-1 Skyrays, A4D-2 Skyhawks, and F14B Furies.*

RADM. JOSEPH C. CLIFTON, *Chief of Naval Air Advanced Training, became the first admiral in Naval Aviation history to qualify in sweptwing jet aircraft aboard a carrier when he landed his F9F-8T aboard USS Antietam.*

NANEWS INDEX JAN. TO DEC. INCLUSIVE 1958

NELSON SUBLETT *of Atlantic Research Corp. holds Navy ARCAS rocket designed for meteorological and upper atmospheric research. A solid propellant will lift a 12-pound payload to an altitude of 200,000 ft. (40 mi.).*

LETTERS

SIRS:

The officers and men of Patrol Squadron Nine proudly report a flying safety record that will be a tough one for any other *Neptune* squadron to equal.

In the period 1 July to 30 September 1958, they averaged 1057 accident free hours per month—a total of 154 hours more than the record reported by VP-23 in the September 1958 issue of *Naval Aviation News* (p. 39).

The Patron Niners accomplished this feat in some of the worst weather the Aleutian area could muster. Three separate detachments were maintained in Kodiak, Adak, and Fairbanks. VP-9 aircraft operated from the Arctic Circle to south of the Aleutian Chain during this period.

Skippered by Cdr. R. F. Peterson, VP-9 made a series of exploratory flights over the Polar ice cap which eventually aided the submarine *Nautilus* in her historic polar penetration.

PATROL SQUADRON NINE

Correction

NAVAL AVIATION NEWS reported in the November magazine (page 28) that the gunnery phase of flight training and the carrier qualification unit at Whiting Field had been moved to Barin Field. Actually, those flight activities were moved *from* Barin to Whiting Field. We regret the error.

● In space travel, just being close doesn't even count. In a trip to Mars, for example, a velocity error of one foot per second at a distance of 300 miles from the earth will cause a space ship to miss the center of its target by almost 22,000 miles.

VADM. R. B. PIRIE, *DCNO (Air), presents trophy to W. S. Blanchard, winner of grand and open championship awards at the National Model Meet. Capt. L. P. Carver, C.O. of NAS Glenview, where meet was held, looks on.*

P3V-1 Contract Awarded
$10.4-million for Pre-production

Lockheed Aircraft Corporation has been awarded a $10.4-million Navy contract for pre-production work on the P3V-1 ASW patrol plane.

A prototype of the P3V-1 (counterpart of the commercial *Electra*) has been flying since August 29 and will continue air work during the next year to prove systems compatibility and further design evaluation.

The P3V-1 will have four Allison T56-A-10 turboprop engines which will develop 10,000 hp at takeoff.

First American prop-jet ASW plane, the P3V-1 will have a top speed of more than 400 mph but can fly at speeds below 150 knots for search.

It will be equipped with the most modern electronic searching devices in the world, including advanced underwater sound detection equipment and a magnetic airborne detector, which locates metallic objects by noting changes in the earth's magnetic field. Its armament will include the latest airborne ASW weapons.

★ ★ ★

Dive Bombing Expert Retires
Led to Development of the Tactic

At MCAS CHERRY POINT, Col. Zebulon C. Hopkins, one of Marine Aviation's earliest practitioners of dive bombing techniques, retired from active duty after 30 years service.

As a member of a hand-picked team of "seat-of-the-pants" stunt flyers called "Rowell's Circus," he barnstormed the country in 1932 giving exhibitions of dive bombing. The team was observed in Cleveland, Ohio, by Germany's Air Commandant, Col. Gen. Ernest Udet, the man credited with developing the Luftwaffe's Stuka dive bomber. Many aviation experts believe Udet's observation in Cleveland were responsible for the acceptance of dive bombing by the German High Command.

Appropriately, Col. Hopkins, as an exponent of low level bombing, had a hand in the initial air support of ground troops by Marine aircraft in WW II.

CONTENTS

Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget, 22 April 1958.

● COVER

The aeronautical chart of the New York Area with its varied symbols suggests the airspace problems Cdr. Robert E. Pine discusses on pages 13-15.

● SUBSCRIPTIONS

Naval Aviation News is now available on subscription for a $2.50 check or money order ($1.00 additional for foreign mailing) made payable to Superintendent of Documents, Government Printing Office, Washington 25, D. C. Single copies are 25 cents each.

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CVG-3 JET FORMATION FLIES OVER THE MED DURING DEPLOYMENT. TOP: F9F-8P, FRONT: F8U-1, BOTTOM: A4D, AND REAR: F3H-2N

★ ★ ★

CARRIER AIR GROUP THREE

After eight action-packed months in the Med aboard the Super Sara, CVG-3 headed by Cdr. R. H. Mills, returned to Mayport. More than 23,000 hours were logged by VF-31 Demons, VF-32 Crusaders, VA-34 Skyhawks, VAH-9 Skywarriors, Skyraiders of VA-35, and VAW-12, VA(AW)-33 detachments plus VFP-62 Cougars.

SARATOGA AT ANCHOR OFF CANNES DURING SPECIAL CEREMONIES

Memo from Gramp

Jest want t'give you fellers my thoughts on a subject that sure oughta be number one on your hit parade—especially this time of year. The best Christmas gift any of us kin come up with is jest bein' here to celebrate the holidays with our families and friends. Don't fergit, too, that your bein' around comes as a result of bein' safety conscious all through the year. Never think you can take a vacation from good, sound safety practice. Jest you think it can be done and all of a sudden sumpin's goin' t'belt you into the boonies!

So think safe—act safe—fly safe—and we'll get together next year, too, to swap greetin's.

MERRY CHRISTMAS!

NAVAL AVIATION NEWS