NAVAL AVIATION NEWS

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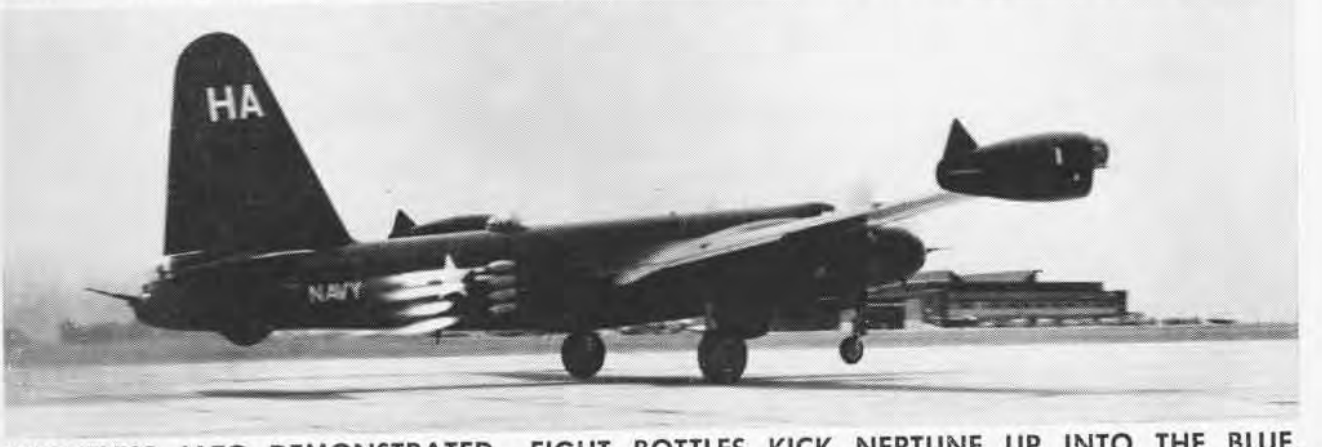
SOMETHING NEW HAS BEEN ADDED

NEW CUTLASS, F7U-3P, PACKS FIVE CAMERAS IN NOSE, FLARES REPLACE THE GUNS.



SMOKELESS JATO DEMONSTRATED. EIGHT BOTTLES KICK NEPTUNE UP INTO THE BLUE.

SUPER CONNIE, R7V-2, HAS TOP CRUISE OF 440 MPH, CAN CARRY 16-TON PAYLOAD.

AIRBORNE FURY FOR LEATHERNECKS

THE KEEN stabbing blade of Marine determination and courage cut the vital Japanese defense lines at Iwo Jima. Domination of this strategic island was an essential part of FAdm. C. W. Nimitz' "Wedge to Amoy" which he proposed to drive between the Japanese homeland and that empire's area of conquest in southwest Asia.

Strategy of the Allied campaign was clear to the enemy in early 1945. Surprise was out of the question, and only dogged, overwhelming force could assure victory.

Tribute to the heroic action of the U. S. Marines on Iwo Jima will be paid this month when the Suribachi Memorial is dedicated in Washington, D. C. at the time of the annual birthday observance of the Corps. The world-famed picture of a group of battle-weary Leathernecks planting the national ensign atop Mt. Suribachi, taken by AP photographer Joe Rosenthal, now has its sculptured representation to remind generations of their debt to the heroes of Iwo Jima.

During the battle for Iwo Jima, Marine Aviation flying from flight decks proved the worth of training discipline and planning. But for this kind of support, the ensign might never have flown over Mount Suribachi.

Marine Aviation made a proud record in World War II. What had years before started out as a small organization of 143 men on a budget of less than $50,000, had come of age. Again in the Korean campaign, the precision of close air support was brilliant proof of the heroism and dexterity of the flying Marines.

On 17 February 1945, a carrier-based raid on Tokyo was made in preparation for the amphibious assault on Iwo Jima. Led by LCol. W. A. Millington, VMF-124 and VMF-213 were launched from the USS *Essex*. Two other squadrons, VMF-221 and VMF-451, were launched at the same time from the USS *Bunker Hill* under the command of Maj. E. S. Roberts and Maj. H. A. Ellis.

Two days later these squadrons were at Iwo Jima to support the Leathernecks' landing. For the first time, Marine Aviation used carrier-based Marine squadrons to support Marine ground troops.

'BLUE LEADER NINE, I NEED NAPALM HERE'

BACK WHEN MARINES 'FLEW BY THE SEAT OF THEIR PANTS,' SCHILT WAS A LIEUTENANT

LT. CUNNINGHAM IN CURTISS SEAPLANE

IN 1911, a Marine tried to fly. Obsessed with the idea of flying, A. A. Cunningham had taken a balloon flight in 1903 over his native Georgia. In 1911, he squandered $25.00 a month of his $166.00 income to rent a flying machine built by a civilian at Philadelphia. He failed miserably in his attempts to get the plane airborne, and it wasn't until a year and a half later that he soloed at Marblehead, Mass.

Another pioneer of Marine Aviation was Lt. B. L. Smith. He followed Cunningham with the designation of Marine Aviator No. 2 and Naval Aviator No. 6.

Just prior to 1914, Marine Aviation was made a separate unit from Naval Aviation. Since the time of Cunningham, Smith, W. M. McIlvain, Frank T. Evans, R. S. Geiger, L. S. Brewster, and W. E. McCaughtry, there have emerged from the Marine ranks many notable pilots. Were these men alive today to see the tremendous strides made in Marine Aviation, each would be fascinated with jet engines, close air support, Marine organization, training methods, and tactical operations.

In 1918, the Marines began drawing their flying students from the school the Navy had set up at the Massachusetts Institute of Technology. Given CPO or gunnery sergeant ranks, promising volunteers were sent there for a course of instruction. Lasting ten weeks, the MIT course culminated in a period at Miami where student pilots began to fly. As of 1 June 1918, the 1st Marine Aviation Force reported that it had on hand 124 "satisfactory" pilots. Of these, 23 were regular Marines, 17 were reserve second lieutenants, 20 were ex-Navy pilots, 10 were ensigns waiting to enroll, 47 were cadets awaiting enrollment, and seven were Marine enlisted pilots.

Small wonder then that Marine Aviation can proudly boast of its accomplishments since that time 36 years ago. Today Marine Aviation has expanded to include four giant air stations, four air facilities and three aircraft wings.

Prior to WW II, Marine Aviation consisted of 251 planes in nine squadrons. During the war, five aircraft wings were authorized. Peacetime complement now consists of three wings which are assigned more than 1,300 aircraft, mainly combat types.

Always in search of a new and better way of carrying war to the enemy, Marine pilots have perfected two very important bombing techniques over the years. In 1919, Lt. L. H. M. Sanderson discovered that he could hit his target better by pointing his plane at it in a shallow dive and releasing his bombs at an angle of about 45 degrees. Dive-bombing was further exploited and developed until today it is one of the Marines' prime offensive weapons.

The first organized dive bombing attack in support of ground troops was carried out by Marine pilots at Ocotal,

EARLY AIR SHOW GAVE THE MARINES BIG OPPORTUNITY TO DEMONSTRATE THE FAMOUS BOEING F4B-4 SINGLE-SEAT FIGHTER

MARINE GROUND ELEMENTS EAGERLY AWAIT THE ARRIVAL OF ADDITIONAL MEN. HELICOPTER TRANSPORT IS MARINE SPECIALTY

Nicaragua, in 1927. Maj. R. E. Rowell with four other planes levelled the city in support of a 37-man garrison of the 11th Marines, killing an estimated 40 to 80 rebel soldiers, and wounding 50 to 200 others. Modern day strategists refer to it as close air support.

Between WW II and the Korean war, Marines kept in training by practicing combat and logistic tactics at their two air stations and subordinate facilities. This prepared them for anything that might come along in the form of combat—but not quite everything.

At least, that may be the opinion of Capt. Charles A. Willis of MAG-1 who will long remember his first Korean combat mission in which he started out in a *Corsair* and came back on a bicycle.

Willis' plane ran out of gas as he was returning to his base, and he was forced to parachute over friendly territory. He landed in a rice field near a schoolhouse and was immediately surrounded by about 200 Korean children. A policeman came along, rescued the pilot from his youthful admirers and insisted that the flyer take his bicycle to get home, seven miles away.

Still another Marine, Maj. George A. C. Hanna, will remember his return to a forward air base in Korea. An overcast had forced him to circle the field for two hours. Darkness was closing in and his fuel was almost gone, so the tower ordered him to make a GCA landing. Turning to his approach instruments, he discovered his panel lights were out of order. With characteristic Marine ingenuity, he dug out a box of matches and lit one after

NEW HELICOPTER FOR MARINES IS HR2S-2

HELICOPTERS ARE VITAL TO THE RESUPPLY OF MARINE FRONT LINE GROUND ELEMENTS

FAMOUS CHECKERBOARD SQUADRON FLEW CORSAIRS IN KOREA

another, making enough light to see his instruments.

He made the landing and turned to his lone passenger, Capt. Jack Lewis, who had sweated it out with him. "We made it O.K.," Hanna laughed. "What were you worried about?"

"Nothing much," Lewis assured him. "I was just wondering what would have happened if you'd run out of matches."

Hostilities in Korea showed again and again that the Marines were ready. Flying piston-engined F4U *Corsairs*, from the flight decks of small CVE-class carriers off the coast of Korea, they tallied notable scores against the Reds.

They perfected a technique of which they were already past masters—close air support. A real part of Naval Aviation, the Marines were as qualified to fly from carrier decks as from airfields. Their support to ground troops relieved the pressure along the 154-mile front at the 38th parallel.

Marine pilots were occasionally assigned to the Air Force on the exchange pilot program. This gave the Marines an opportunity to shoot down *Migs*, and a number of Marine jet fighter pilots emerged as *Mig* killers.

MARINE PANTHERJETS CARRIED WAR TO COMMUNISTS IN KOREA

Maj. J. F. Bolt is the only Marine jet ace in history, and Maj. A. J. Gillis has four *Migs* to his credit. Jack Bolt was possibly one of the most aggressive pilots ever to fly the Korean skies. He turned down leave and recreation periods during his nine months with MAW-1 to fly with the 51st Fighter-Interceptor Wing of the 5th Air Force in war torn Korea to get in additional flying time against the celebrated MIG-15.

In three months he succeeded in besting the enemy on six different occasions. The MIG-15 pilots would retire to their Antung sanctuary when the going got too rough, and Bolt often followed the fleeing fighters to within a

POLKA DOT SQUADRON WAS SERVING ON CVE LAST DAY OF WAR

stone's throw of the Yalu River, the boundary which no U.N. pilot was permitted to cross.

Maj. "Rocky" Gillis' last mission with the 4th Fighter-Interceptor Wing was made after he had received rotation orders, back to MAW-2. He chose to make one last flight up *Mig* alley. He led a four-plane flight on the afternoon of 28 September 1952. Gillis and the AF pilots met a dozen *Migs* on the prowl. Gillis succeeded in shooting down one of them before his F-86 was hit by a .37-mm shell from a *Mig* on his tail. He had shot down his third *Mig* earlier that day.

While he was recovering from the resulting spin, another shell crashed into the cockpit and momentarily blinded him. His left hand was caught in the throttle quadrant. Two *Migs* followed him down to 4,500 feet and, believing him dead, broke off the battle.

But Gillis, far from dead, succeeded in getting back to the mouth of the Yalu River, 83 miles away. Then to get himself loose from the aircraft, he broke his thumb and forefinger and ejected. After floating five hours in the water, he was picked up.

Capt. Jesse Folmar achieved special fame: He got a *Mig* in September 1952 while flying an F4U *Corsair*, the only *Mig* killed by a prop-driven aircraft during the entire Korean war, according to available reports.

Other Marine pilots who are credited with downing Communist aircraft are: Capt. Philip DeLong, two *Yaks;* Lt. Harold Daigh, one *Yak;* Capt. William Guss, one *Mig;* Capt. W. J. Marzello, one *Mig;* Maj. William Stratton, one *Yak;* Capt. O. R. Davis, one *Mig;* Lt. A. J. Corvi, one

PO-2; Maj. E. P. Dunn, one *Mig;* Capt. J. R. Weaver, one *Mig;* LCol. R. F. Conley, one *Mig;* Maj. George Linnemeir, one PO-2; Capt. E. B. Long, one PO-2; Capt. D. L. Fenton, one PO-2; Maj. E. A. VanGundy, one PO-2; Capt. John Andre, one YAK-9; Maj. Thomas Sellers, two *Migs;* Maj. Roy L. Reed, two *Migs;* Capt. Harvey Jensen, one *Mig;* Maj. J. H. Glenn, three *Migs;* Capt. Robert "Ding" Wade, one *Mig;* and LCol. John Payne, one *Mig.*

These Korean veterans form part of the hard core of trained experts who are ready to carry out the mission of Marine Aviation: to support amphibious landings by gaining air supremacy, isolating battlefields and furnishing close air support. The mission involves a variation of tasks, and specialization is inevitable. For example, observation of enemy movements and terrain is vital to efficient planning. This is accomplished by both helicopter and jet photographic squadrons.

THE Korean war yields other examples of how complex this mission is. Certain members of MAW-1 were the only helicopter pilots in Korea who regularly made night evacuation hops. They evacuated badly wounded men from front-line positions to rear aid stations and from there to hospital ships.

These evacuation pilots maintained a 24-hour alert, and a helicopter could be airborne in three minutes. The pilots stayed in tents 100 yards from the flight line while on duty. Mechanics lived nearby, and, as soon as the phone rang, the mechanics started the engines. A pilot was told the location of the patient and took off.

NAPALM IS ONE OF THE MARINES' MOST FEARED WEAPONS

Flying was almost by "feel" since there were few instruments in the "choppers" and all navigation had to be done visually. Each pilot needed to memorize the artillery and mortar positions of the Marines in order to complete his flights safely. On these evacuation hops, 'copters travelled at a top speed of 70 knots.

The pilots who flew these night hops were too smart not to admit fear. In the ready room where they stood their 24-hour watches, someone had clipped the title of a story from a popular national weekly magazine and posted it. The story was entitled "I Fly the Night Skies Over Korea."


IN TRAINING, A MARINE PILOT LAYS NAPALM ON HIS TARGET

The Marines had added their own sentiments to it . . . "and it scares me." Amen!

Marine Aviation has been welded into the Corps. Director of Marine Aviation and Assistant Commandant (Air) U. S. Marine Corps, is LGen. William O. Brice. Not only planning but also training is his responsibility.

Training of Marine aviators is carried on in much the same way as in other organizations, but the special *esprit de corps,* which marks all elements of the Marine Corps, has been added. The training is similar in many respects to that which Marine aviators received all during WW II and the Korean War.

As in Naval Aviation, Marine aviators are drawn from three sources—civilian (NavCad), officer (Naval Academy and officer training programs), and enlisted. Graduates of the basic training course at Quantico may request flight training and proceed to Pensacola where all Naval and Marine aviators are trained. Advanced training is given at Corpus Christi after carrier qualification trials.

Final training of a Marine flier begins when he joins a squadron. The "men" have already been separated from the "boys." But here the "men" become Marines—or else!


PERILOUS NIGHT EVACUATION FLIGHTS WERE FLOWN BY VMO-6

GRAMPAW PETTIBONE

The Quickest Way Out!

An F9F-6 pilot took off on his first familiarization flight accompanied by a chase pilot. A few minutes after becoming airborne, the chase pilot announced that the flight would return to base at once because his tail pipe temperature was fluctuating. A quick letdown was made and the two planes entered the traffic pattern. At this point, we take up the statement of the "fam" pilot:

"I kept a rather close interval on the chase pilot in order to familiarize myself with the traffic pattern. I lowered my dive brakes, wheels, flaps, and opened the dive brake override switch. At the 180° position, I reported my

wheels down and locked to the tower. At the 90° position I think I was a little fast. Longitudinal control felt normal except for a slight nose heaviness, which I trimmed out.

"Over the end of the runway I still seemed fast, but felt I was in a good position to land and commenced to flare out. I thought my nose was in a

proper landing attitude. I do not remember closing the throttle.

"On my first touch-down, I bounced back into the air slightly. When the plane bounced a second time, I felt I should take a wave-off, but elected to get it on the ground. From there on the porpoising became uncontrollable and I bounced a few more times. I decided to ground loop and hit full left brake. I remember pulling the emergency brake bottle control.

"The plane was now swerving to the left off the runway. The nose wheel and

right gear sheared off followed by the left gear. I noticed smoke and heat coming up from around the base of the control stick and my right hand was getting very hot. I was afraid the aircraft might explode so I decided to take the quickest way out.

"I actuated the preejection lever and pulled the face curtain. I remember going up in the air, but I don't remember hitting the ground."

Grampaw Pettibone Says:

Great Horned Toadies! I've heard of pilots bailing out at low altitude, but how much lower can you get and live to tell about it? This lad really used his old noggin, when he got 40 feet in the air and released his face curtain. He took one look at the ground and fainted.

This brings to mind one night years ago, when I had a bad dream. I was on top of a high cliff looking down. The next thing I knew I was falling through space at a terrific speed. There was only one thing to do to keep from being crushed on the rocks below. I woke up.

In this case the pilot took one look at the situation and decided to turn it into a bad dream. Lucky he did, too. Outside of six cracked vertebra, cerebral concussion, contusion of the right kidney, and a few lacerations here and there, he came out of the nightmare in pretty good shape, for which we are all thankful. The irony of it all is that the aircraft came to a stop about two seconds later and the pilot landed about 30 feet to one side. The crash crew put out the fire in the aircraft.

This incident proves one thing to me. The thinking mechanisms of some of you lads will always be about two-tenths of a point behind the Mach number of your airplane until you realize that your best insurance is anticipation. Too many of you fail to anticipate the fact that you're gonna come down one way or the other once you get off the deck. Why not give yourselves the benefit of doubt and anticipate the procedures you'll be forced to use if something unusual happens?

In high performance aircraft especially, you'll sometimes find you don't have time to analyze the situation and pick a course of action. Split second decisions have to be made, but you're a dead duck if you don't make the right one. If you're lucky enough to be around after making the wrong decision, you'll no doubt kick yourself in the posterior for not doing something else. But hindsight isn't going to replace limbs or aircraft.

You can save a lot of trouble by sitting down in the Ready Room and steering the conversation from your favorite topic to reflexes, the type applied to aviation, that is. By deciding what your course of action would be in a projected situation, you are more apt to do the right thing if faced with that situation in reality.

I'm sure that hitting the panic switch at low altitude or on the deck wouldn't be too popular. That's too much like committing suicide to keep from getting killed.

The Wheel of Fortune

An F8F-1 was cleared from NAS DENVER to Nellis AFB, Las Vegas, Nev., with an enroute weather forecast of scattered rain showers and snow flurries with icing in clouds and in precipitation. The pilot, who had a Special Instrument Rating, was given a VFR clearance to maintain 500 feet on top of a broken layer of clouds.

He was instructed to change his flight plan to IFR if the broken layer became overcast or if he couldn't maintain 500 on top. He was cleared to climb VFR to on top and let down VFR at his destination. He was not to proceed through the overcast because of the icing conditions.

Two hundred miles short of his destination and with 40 minutes of daylight remaining, the pilot made his decision. Las Vegas was 2,500 broken, 4,000 overcast, and 15 miles visibility with rain showers. The icing level was 9,600 feet. Below him was a field with a 7,500 foot hard surface runway, 4,000 scattered clouds, and 35 miles visibility. He requested and received an IFR clearance and reported 500 on top at 15,000 feet.

One-half hour later he called Las Vegas radio and declared an emergency with no amplification. Shortly thereafter and 100 miles short of its destination, the plane was seen to break through a cloud layer and hit the side of a mountain 4,700 feet above sea level. The plane may have been under control as the pilot attempted a power-on climbing turn to the right to avoid the mountain. He didn't make it.

Grampaw Pettibone Says:

Confidence is a wonderful thing. But confidence coupled with haste in this flying racket is a combination that adds up to a high score . . . for the Grim Reaper. This pilot demonstrated haste right from the start. He was warned before he took off that there was possibly something wrong with his vacuum pump, but he declined to have it checked as he was anxious to get in the air.

He was told not to fly into precipitation with an aircraft not equipped for icing conditions, but he probably thought why land at a dinky town in broad daylight when you can get to a place like Las Vegas shortly after dark? Besides, the joint ain't really jumpin' until the lights are turned on. (I can almost feel his urge to reach his destination, which completely overpowered his good judgment.)

That green card with the suction cup on the back stuck up there in the windshield means what it says, "Put the weather on it and I'll fly it." Sure it does and I'm a monkey's grampaw. The following message was intercepted that cold dark night from an unknown broadcasting station. Decoded it read:

The Wheel of Fortune was spinning around,
The call of the gambler, I was Las Vegas bound.
The tables are green, my ticket was too,
Rain, snow, or ice couldn't keep me from you.

This ditty I sing as I fly through the sky,
I've gambled my last, to do or to die.
My bet was laid down, my life in my hands,
Make my epitaph read: "He still lives who lands."

The Positive Approach

We are continually plagued with accidents for which there is no determined cause or the cause is unknown. On one hand, the Accident Investigation Boards are prone to give the pilot the benefit of the doubt and surmise that, inasmuch as the pilot was highly experienced, there must have been a malfunction of the aircraft. On the other hand, since there was no evidence of either pilot error or material failure, the Boards sometimes give up and advance no theory, probability, or opinion as to the cause.

Case No. 1. A TBM on a searchlight hop, no horizon, visibility about six miles, flew into the water at an unknown angle after completing several successful runs. The large amount of oil and debris found indicated that the angle of entry was other than in level flight. The Accident Board offered the suggestion that material failure was involved because the pilot was a recent graduate of All Weather Flight School.

Case No. 2. During night carrier operations, a pilot was launched in an AF-2S. It was a black night with no horizon. After a steep climb to approximately 700 feet, he made a 180° turn and proceeded down wind. Just off the port beam of the carrier, he commenced a left turn gradually, steepening the bank and losing altitude. The Air Officer called him twice to level his wings and pull up, but no attempt at recovery was made and the aircraft entered the water in a steep left turn. The Board assessed the cause of accident as unknown and made no recommendations for prevention of a recurrence.

Grampaw Pettibone Says:

Now come on, fellas, I know that accident investigations take time away from your regular duties. Like taxes and death, accident reports are inevitable whenever there is an accident. But this doesn't give you investigators the right to palm off a report just to get it out of your hair.

I'll grant you that few experienced pilots get vertigo when they are flying instruments. But it is a well known fact that the best pilots can get vertigo if they try to fly contact on a black night with no horizon. In my book a little mature judgment and careful analysis based on pilot experience (and I don't mean the pilot who has the accident), will usually unearth a logical opinion as to the cause of the accident. The Board can then make recommendations for local action.

I call this a "Positive Approach to Accident Prevention." Don't let pilots die in vain because you are not *sure* what happened, and haven't the nerve to point out a possible weakness in your safety program. *Any* approach to the prevention of an accident is better than no approach.

SURVIVAL GEAR YOUR ACE IN A HOLE

Grampaw Pettibone is famous for his inimitable, searing remarks to knot-headed pilots and his occasional whimsical pats on the back for "heads-up" flying.

He's gone so far as to eat verbally the flight suits of pilots who fail to utilize their pararafts and exposure suits to advantage. Many have died because they did not use the gear designed specifically to keep them alive under desperate circumstances.

Aviators who are in doubt about the value of survival gear should contact two fliers down Jacksonville way. Cdr. W. F. Krantz of the VA-45 *Blackbirds* and Lt. H. H. Henderson of VC-62 owe the fact that they are alive today to survival gear.

Commanding officer of his squadron, Cdr. Krantz is a safety-conscious skipper and he makes sure that his survival officer, Ens. W. W. Pflug, indoctrinates each and every man in proper techniques. Ens. Pflug has just completed a three-week survival course at the Strategic Air Command at Reno, Nevada.

Cdr. Krantz had his brush with death when he was on a torpedo-bombing mission against the Japanese forces during WW II. When he was forced to ditch his plane in the Pacific Ocean after it was hit, he and his crew survived 12 days in a raft and six months on a Jap-held island before they were rescued.

Back in the days when Krantz ditched his plane, survival gear was adequate, but it's even better today.

"Survival apparatus has improved tremendously over the last 10 years," Cdr. Krantz says. "Next to actual flying skill, a pilot relies most on his survival gear to keep him alive."

VC-62's "Exhibit A" in survival is Lt. Henderson. He owes his life to his old Mk 2 exposure unit. In fact, such a suit saved his life twice.

The first time, Lt. Henderson had the light carrier *Ommaney Bay* shot out from under him in the Philippine Sea. The water was warm that time, but the second time, on the occasion of his ditching his plane off the coast of Newfoundland, he was in the water for better than an hour.

With high running seas and water a chilling 37°, his life raft was pulled

ENSIGN PFLUG MODELS PROPER OUTFIT

from his numb hands when he attempted to inflate it, but the Mk 2 exposure suit kept him afloat and warm until a fisherman pulled him out.

Dangling and toting the many odd-looking objects that are strapped about his chest and legs, a pilot may look clumsy as he walks toward his airplane, but once he is seated in the cockpit of his plane, he's as comfortable as if he were home in bed (almost). This strange assortment of gear may look like a Rube Goldberg nightmare, but time and again, it has saved the life of a pilot.

The average flight survival kit, packed in a PK2 pararaft container, is divided into two sections. One half carries the raft, and the other contains a life vest dye marker, one poncho, one signalling mirror, four red smoke flares, one radar corner-reflector, 100 feet of line, one solar still, one water bag, one sea water desalting kit, a small VHF transmitter and receiver, life raft signals, first aid kit, and instructions for using all the equipment.

The pilot is required to wear a crash helmet, a G-suit, a canteen, goggles equipped with dark polaroid lens for bright days, orange lens for dull days, clear lens for night flying, and the all-important oxygen mask. It's valuable luggage.

IFR-IQ?

You are at a civilian P or PC field which has no CAA communication facilities. You plan a flight into an ADIZ. Correct procedure would be to file your flight plan immediately after takeoff with the nearest CAA station with which you could establish radio contact. TRUE OR FALSE?

Answer on Page 32.

Hey, Mac, Where You From?

VP-2 Keeps Track of its Personnel

Men of VP-2 keep track of their shipmates even after rotation to the States has changed their personnel lists as much as 40 percent.

While on duty in the Far East, they began compiling a squadron address book for presentation to all hands. By the time the book was completed, some very interesting statistics came to light. Out of the 329 names listed, only five states were not represented: Vermont, North Dakota, Arizona, Delaware and New Hampshire.

The state of Washington contributed 49 names. California came next with 36, followed by Texas with 28. From there on, representatives dropped off sharply to five or six from each state, finally one each from Maryland, Rhode Island, South Dakota, and Nevada.

The book also provides a lesson in geography, for listed as home towns were places such as Red House, N. Y., Wetmore, Kans., Sparks, Nev., Novelty, Ohio, Widemouth, W. Va., Grey Bull, Wyo., and Dry Prong, Iowa. Which goes to prove again that, "Texas hasn't got everything."

VF-64 Wins a Safety Award

Pennant Given on Friday the 13th

Ask any member of VF-64 if he believes Friday the 13th is an unlucky day, and he will probably say "No".

This safety-conscious group of aviation personnel based at NAS Alameda has just been awarded ComAirPac's quarterly safety award for jet fighter aircraft.

The award was presented during an inspection of Air Group Two for having a 100% safety record during the second quarter of 1954.

Cdr. W. E. McLaughlin, CO of VF-64, accepted the flag from Capt. C. B. Jones, Acting Commander Fleet Air.

Japan Given Navy Planes

NAS Atsugi Delivers Five Trainers

RAdm. Robert F. Hickey, ComFair Japan, recently turned over five naval aircraft to the Japanese Maritime Self Defense Force at NAS Atsugi which marked a milestone in the development of a Japanese maritime air arm.

At ceremonies attended by high Japanese and American officials, the five SNJ's were delivered to VAdm. Ko Nagasawa, Japanese Chief of Staff for Maritime Operations. He promised, "These planes will be used to the utmost for the defense of Japan."

Seven additional planes are scheduled for delivery in early 1955.

BELL *experimental model 47G-1 (bottom) has the unique feature of being able to fly backward at 20 mph. Center is an Army H-13 and at top is standard demonstration 47 G-1.*

'Copters Spot Bird Nests

Team with Army in Medical Mission

It sounded like a real "goof-off boon doggle" when MAG-16 was requested to utilize their helicopters to look for bird nests, but the 406th Army Medical General Laboratory, located in Tokyo, was deadly serious.

Behind the request was the fact that herons and egrets are important in assembling the virus of Japanese "B" encephalitis in nature, and during the mating season, they gather into colonies scattered in a fifty mile radius about Tokyo. Primary emphasis was placed this year on studying large numbers of these birds as a part of a four-year-old research into the disease.

A doctor participating in the study estimated that a few flights by the Marine helicopter saved him two months hard work by locating nests.

VADM. R. A. *Ofstie, DCNO (Air) discusses the capabilities of the FJ-2 Fury with the latest group of Navy and Marine aviators to report to the Air Force for duty under the exchange pilot program. (L to R) Capt. F. A. Marshall, USMC, Maj. P. Fuss, USMC, Capt. E. F. Ravensberg, USMC, Lt. R. M. DeBaets, Adm. Ofstie, Lt. A. S. Wilhite, Lt. H. J. Post, Lt. R. W. Somers, Ltjg. C. E. Myers, Lt. K. B. Austin, Lt R. E. Occhslin, Lt. A. J. Nemoff, and Lt. T. S. Lake. Lts. E. R. Williams, J. P. Eells and R. A. Zavichek are with the group, not in the picture.*

VR-21 Sets Flight Record

Flies 2½ Million Miles in 7 Months

During the first seven months of 1954, VR-21 carried 21,710 passengers and 1,400 tons of cargo over two and a half million miles.

This record for the Hawaiian-based squadron equals 155 trips around the world. Operating the R6D aircraft, VR-21, during the month of June, utilized an average 8.6 hours flying time per day per aircraft. This is believed to be the highest record for a military squadron operating the R6D type transport.

An increase of 91% was realized in its daily average of 4.5 hours for one 30-day period. This was accomplished by maintaining eight operational aircraft. Maintenance and ground crews did a steady job of service and repair to enable pilots to average 115 hours.

SHOT OFF *to be shot at, a gunnery target drone is launched from the deck of USS Kula Gulf (CVE-108) during an Atlantic Fleet ASW exercise. VU-6 launches and controls the flying targets.*

COMING DOWN THROUGH THE SOUP

INSIDE *their GCA trailer units at major air stations, operators have guided a million planes since 1946, some 70,000 under IFR conditions.*

AT EVERY major air station in the country will be found a Ground Control Approach Unit. Commonly referred to as GCA, these units have a single mission—to bring planes and their passengers "down thru the soup" to a safe landing.

As of 30 June this year, Navy and Marine Corps GCA units have conducted a total of 1,413,022 landings, of which 70,831 were under instrument conditions.

PRE-FLIGHT *briefings are all important to both the instructor and the student. Before take-off is made, GCA procedures are discussed.*

A new piece of equipment has been designed by commercial engineers that will eventually replace the ones in use. Tabbed the MPN-5—Mobile Pulse Navigation—the new unit will be so constructed that the operators will be able to handle multiple approaches.

On the MPN-5, five operating positions have been provided: two plan position indicator (PPI) scopes, two azimuth-indicator scopes, and one combination scope, from which each operator can assist in directing multiple approaches.

Typical of the commands who will receive the MPN-5, replacing its present equipment, is FAWTUPac's Detachment B at NAS MOFFETT FIELD. Already this unit has many GCA let-downs to its credit, and LCdr. Charles Baumeister, OinC of the detachment, says, "We are trying to raise the instrument proficiency of our fleet pilots to such a level that any mission against any enemy can be accomplished regardless of weather conditions."

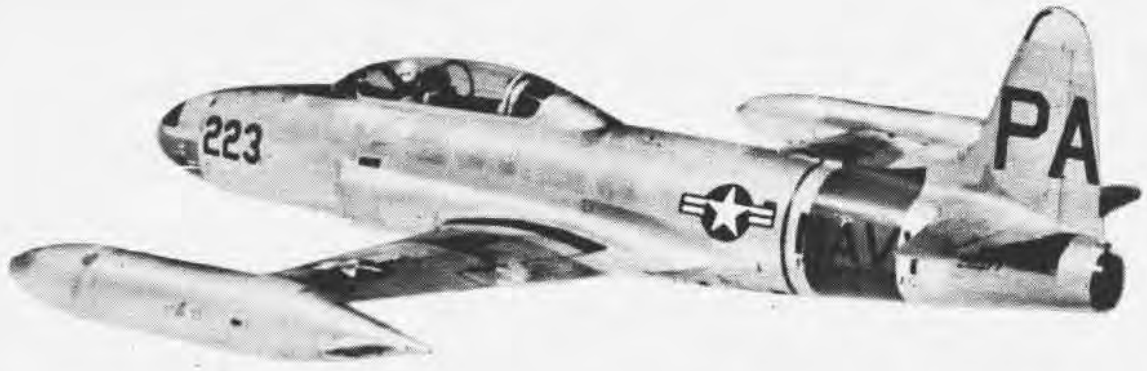
GCA let-downs under IFR conditions are no snap as most pilots will tell you. It is FAWTUPac's job to alleviate most of the strain on a pilot who is experiencing adverse conditions during his let-down.

Say, for instance, you are tooling around in an overcast at 15,000 feet with reported visibility a mere 50 feet, a ceiling of less than 100 feet, and your jet fuel down to about 1,000 pounds. Your estimated flying time—if lucky—is about 20 minutes.

Sitting tensely in your ejection seat, you request a GCA let-down. When the calm, collected voice of a GCA operator informs you he has you on his scope, then you start to relax. The GCA trailer on the side of the field has lessened your worries about 90 percent.

You grow more relaxed as the constant sing-song of

DURING *the first week of FAWTUPac's instrument course, the student "flies" the Link trainer, familiarizing himself with IFR conditions.*



his voice drones in your ears. "You're approaching the glide path. Begin your descent at 500 feet per minute. You're slightly above the glide path, bring it down, please. On course, your heading is three-two-one. On course . . . on glide path . . . heading three-two-one. Coming along nicely. You are two miles from touch-down point. Your rate of descent is excellent. Come right to three-two-five.

"You are now one mile from touchdown point. Coming along nicely. On glide path, on course, your heading three-two-five. One-half mile from touchdown. You are now at GCA minimums. Runway is dead ahead, take over visually."

All during the let-down, the operator hasn't fumbled his transmission once. He can't, for if voice transmission stops for 30 seconds, it's an automatic wave-off for you. The extraordinary part was that when he told you the runway was under you, you took a quick look over the side, and sure enough—there it was!

DETACHMENT B conducts a three-week course of instruction which starts on the ground and ends with the student's successful instrument approach using GCA facilities.

The squadron has seven SNB's and 22 TV-2's which are modified versions of the Air Force's first operational combat jet, the F-80 *Shooting Star*. With the exception of the added instructor's seat and cockpit positioning, the aircraft remains much the same.

Seated behind the instructor, the student is under the hood which puts him in a totally blind flying position. Guided by the instructor, the student flies in accordance with the Air Route Traffic Control or GCA.

Even before the take-off, each man goes to ground school for a week. After this, he must pass the required ComAirPac Instrument Flying examination.

Held on a strictly informal basis, classes are open to discussion in order to explore thoroughly any special problem. Many of the instructors are chief petty officers and there is no restriction on the rank of either the student or the instructor. Ground school ends with in-flight instruction.

Before take-off, a pre-flight briefing is conducted. The instructor explains the prospective flight routine, final points to remember, and GCA procedures. The two, instructor and student, check out a plane from the squadron duty officer and are off on the student's first instrument flight.

Once airborne, the student practices radio procedures and instrument flying as well as radio navigation.

STUDENT *familiarization of the plane and its instruments is another responsibility of the instructor. This occurs during second week.*

A METAL *hood is placed in front of the student, obstructing his view. The instructor is free to take control of the plane at any time.*

By the end of the second week of instrument flying, the final week of the three-week course, the student is able to make accurate ground control approaches with comparative ease.

With the adoption of the MPN-5, FAWTUPac's capabilities can be almost doubled. This will boost its ability to turn out qualified instrument pilots for the Fleet.

The value of the training Detachment B gives ComAirPac pilots cannot be expressed in dollars and cents. Where training saves men and planes, its worth is truly incalculable.

AIR RESERVISTS PRACTICE AIR-SEA RESCUE

LCDR. DELMAR *L. Canady holds his helicopter motionless above waters of Lake Pontchartrain while Thibodeaux hoists Willow Grove airman.*

OLYMPIC *swimming star, LCdr. Jack Ott, dived into the lake to demonstrate rescue equipment he carried. After inflating raft, he climbed in.*

SOMETHING new has been added to Naval Air Reserve Training programs—air/sea rescue practice. Fortunately Reserves are quite properly taking to it like ducks to water and being hauled out by hovering helicopters.

New men are getting a taste of what was common practice from the icy waters of Wonson Harbor to the surrounding mountains of the Chosin reservoir where thousands of airmen were rescued in this very same manner during the Korean conflict.

Recently NAS NEW ORLEANS and VF-932 from NAS WILLOW GROVE combined forces to perform a simulated air-sea rescue maneuver in Lake Pontchartrain. Fifteen Pennsylvania airmen, commanded by LCdr. E. A. Downs, Jr., were dropped into the lake by Navy crash boat, and one by one they were picked up by a helicopter from NAS NEW ORLEANS.

The motionless whirlybird hovered over the men in the water while aircrewmen Louis Thibodeaux, AD1, and Joe Pipes, AD2, of Aircraft Maintenance, lowered the sling. When the sling, which is on the end of an electrical hoist in the helicopter, hit the water, the "downed" pilot slid into it and signaled that he was ready to go up.

On this signal, the helicopter rose slowly and the man was lifted into the air. When he was free of the water, the aircrewmen started the hoist and brought the "rescued" man through a trapdoor into the eggbeater.

Survival at sea also is an important part in recruiting aviation cadets at NARTU, MCAS MIAMI.

Several thousand students at the University of Miami witnessed a live demonstration of the sort of training

THESE *are a few of the 23 officers from continental naval districts who recently attended a special maintenance course held at NAS New York.*

NARTU *at NAS Jacksonville received surprise visit from Assistant SecNav, James H. Smith, Jr. Second from left, Mr. Smith inspects target banner.*

NavCads receive when stationkeepers and Weekend Warriors staged a ditch and rescue exhibition at the lake near the Miami students' club.

Star performer was LCdr. Jack Ott, a former Olympic swimming star, and director of the swimming pools at the City of Miami. Ott is CO of AAU-801.

While an SNJ-5, piloted by Ltjg. M. A. DeCarlo, flew over the lake, Ott, dressed in flight suit complete with parachute and raft, jumped into the lake from the roof of the club. Although Ott jumped to the west, and DeCarlo flew east, many observers thought that they had witnessed a bail-out from a Navy plane at an altitude of about 100 feet!

Once in the water, Ott inflated his one-man raft, climbed in, and relaxed while he watched the other half of the demonstration.

A seven-man raft put to sea from the shore of the lake, and a helicopter piloted by Chief Kenneth Crews hovered over the scene, picking up crew members after they demonstrated survival equipment contained in the raft.

The demonstration was a complete success. The University of Miami has since sent six more NavCads to Pensacola to commence flight training.

Defense Team on TV

The role NARTU MIAMI would play in the event of atomic attack was shown to the greater Miami television audience recently when Lloyd N. McClish, ATC, and Alexander L. LePage, AT3, demonstrated their parts in the chemical, biological and atomic radiation survey team over television.

Dressed in heavy protective suits and masks, the two men landed by helicopter outside Station WITV, and advanced on the cameras with Geiger counters. As they acted out their role, Theodore C. Slack, YN3, discussed the proceedings with Gail Compton, master of ceremonies for the station.

McClish and LePage pointed out to the television audience that civilian defense teams are also being trained to perform the same duties and stressed the importance of knowing what to do.

NAVY *wings on Miss America were presented to her by Naval Air Recruits at NAS Oakland.*

Oakland Pride

NAS OAKLAND is rejoicing in the fact that *Miss California,* Lee Anne Merriwether, has won this year's *Miss America* title. She was honored by the air station early in August when she was named *Sweetheart of the Oakland Naval Air Recruits.* The gold wings of the naval aviator were pinned on the young lady by the company commander, Airman John Fullerton.

Full honors were given *Miss California* with an inspection, an exhibition by the air station drill team, and a presentation of the wings and a bouquet.

It made a gala occasion for the young recruits who had reached the halfway point in their 90-day program.

Two Units Jet-Trained

Complete transition to jets has been accomplished by Naval Air Reserve squadrons 832 and 843 during the units' two weeks annual training duty at NAS NEW YORK. Additional squadrons are now in the process of being checked out in the Navy's latest jet fighter, the Grumman F9F-7 *Cougar.* Cdrs. Irving Levine and William Woodman headed the Reserve squadrons.

High Recruiting Scores

In processing 12 NavCads during the month of July, LCdr. W. J. Tutwiler's NavCad Department, NAS BIRMINGHAM, attained the highest percent in the Naval Air Reserve Training Command. Although the monthly quota of NavCads was eight, the Birmingham score sheet read 150 percent.

NAS WILLOW GROVE rated second during the same month with attainment of 100% of its quota, 20 NavCads.

BEAUTIES *have their day as Cdr. John A. Harper pins "Miss Ready Reserve of VA-772" ribbon on winner Jan Scholz of Palo Alto.*

THE BIG *Miami eggbeater blows up a breeze as it hovers over an airstrip just as ten Wave Reservists line up for morning muster.*

ADIZ TRACKS YOU; DON'T BE A BOGEY, MAN

AS THE *antennas of a huge, revolving CPS-6 radar system send out probing beams, F-94 interceptors speed on practice ADIZ mission.*

THE INTERCEPTOR pilot rolled his jet night fighter out of the turn in response to directives from the control center far below and behind him. In the rear seat, the radar operator peered intently at the presentation on the radar scope. Around them the night stretched darkly to where an unidentified aircraft had penetrated the Air Defense Identification Zone (ADIZ).

Instructions were, as always, "Intercept and identify," and a package of warhead rockets slung under the interceptor's wings were reminders that each time, any time, the intercept might be the real thing. There could be no other safe presumption.

Contact . . . close for identification . . . and within the cockpit, a circuit-breaker popped. Frowning, the pilot re-set the button. It promptly snapped out again. With a trace of concern in his voice, he passed along the information that he would have to return immediately after the intercept. Ground control acknowledged.

Then, out of the dark and haze materialized the blinker lights of another aircraft. Easing up behind the stranger, the intercept pilot grimaced as he made the identification—a friendly aircraft, tooling along on some innocent, but unknown mission. The interceptor pilot made his report, and headed for home as directed.

He suddenly became rigid against his shoulder straps as smoke poured up from the corner of the cockpit. Urgently he pulled circuit-breakers, cut switches. The smoke persisted, became a tongue of flame that grew. Abandoning the attempt to extinguish the flame, the pilot called "Mayday," announced his intention of bailing out, and instructed his radar operator to prepare to eject.

Ejection was normal and successful. The aircraft slid down into the night in a long flat glide . . . that terminated abruptly when the plane crashed through a housing development. Score: Four dead, three injured.

MILES away, in the cockpit of the "bogey" aircraft, the pilot was congratulating himself on fine navigation as the lights of his destination came into view.

Multiply this incident by hundreds per year, for the most part leaving off the unhappy ending, and you have an unpretty picture of ADIZ procedure offenders whose errors, omissions, and assorted operational mistakes combine to make life unnecessarily miserable for the air defense interceptor.

The files of certain responsible authorities are constantly enlarged with violations such as that given above. But because a needless number of military and civilian deaths have resulted from useless recurrence of these blunders, it behooves even the best of pilots, and even the most safety-conscious commands, to review the procedure of ADIZ penetration.

Given below is a digest of the instructions contained in OpNav Instructions 3722.5, 3770.1 and 3710.7; OpNav Note 3710; Radio Facility Charts and In-Flight Data; and Supplementary Flight Information Document.

1. Flight plan must be filed prior to take-off.

2. For IFR flights outside control areas and DVFR flight, following reports to be made to appropriate authority:

a. Time, position and altitude at last reporting point, and ETA next reporting point, or:

b. Estimated time, position, and altitude of penetration.

3. Transmit corrected information immediately for deviation of following tolerances:

a. More than five minutes estimated time from estimated reporting point of penetration. (If originating in ADIZ five minutes from proposed time of departure in flight plan unless IFR in control area.)

b. More than 10 miles from the centerline of proposed route for domestic ADIZ's or entering U. S. across international boundary ADIZ.

4. File flight plan prior to take-off in ADIZ. Designate VFR as DVFR and include route and altitude within ADIZ.

5. Do not change plan in flight for entry into ADIZ except in emergency.

6. DVFR flights without two-way radio will be conducted only in domestic ADIZ's below 4,000 feet and adhere to filed flight plan, which will include point of penetration and estimated elapsed time to such point.

7. Within air traffic control areas, present IFR procedures will apply.

8. Local flying: Local IFR: Present procedure will apply.

Local VFR: Conducted in a manner conducive to ready identification. Special procedures may be developed by local commanders coordinating with AD force commands concerned.

9. Mass flights: a. Within control zone and areas, no deviation permitted from flight plan unless approved by CAA traffic control.

b. If in other than close formation, each aircraft individually will make position reports.

c. Outside control zone and areas: No deviation unless prior notice made to appropriate aeronautical facility.

d. DVFR: No deviation from flight plan without prior notice, except reasonable descent from cruising altitude to destination. (Note: Pilots are reminded that individual instrument flight plans must now be filed by each aircraft where weather conditions are considered marginal at any point along the proposed route.)

10. Emergencies: Deviation to the extent required by the emergency. Pilots to report as soon as possible the nature of the situation.

11. Flights within coastal and domestic ADIZ: Report position to all compulsory reporting points. If ETE exceeds 40 minutes, report each 30 minutes to nearest CAA facility or military airway station. Report each 30 minutes on all flights off airways.

12. Entering coastal ADIZ: Report position to aero radio facility 10 minutes prior to entering ADIZ.

13. Entering domestic ADIZ: Report position last aero facility along or adjacent to flight route prior to entering zone, giving time of passing facility and ETA for next reporting point.

14. Crossing U. S. boundary ADIZ: Report to nearest CAA radio prior to crossing boundary ADIZ.

15. Entering an ADIZ from Canada, file DVFR flight plan with a Canadian agency.

16. Entering Canadian ADIZ (CADIZ) report to aeronautical facility within the CADIZ prior to entering zone. Report to include approximate track within zone.

NAVIGATION *equipment is the pilot's best friend for ADIZ operations. Time spent here pays dividends, saves possible embarrassment.*

LOCKHEED *F-94 (below) has replaced its older brother, the F-80, in guarding the homeland. It carries live rockets on ADIZ intercepts.*

17. In coastal air operations, when compliance is impracticable, identification and report procedure is mutually developed and agreed to by appropriate commanders.

18. For local DVFR position report, use of the GeoRef system of coordinates is recommended.

19. A recent amendment to instructions is the caution that pilots must require positive assurance of the activity reported so that the reported information will be forwarded to the cognizant authority. The receipt of a "Roger" does not constitute the required positive assurance.

20. Finally, pilots are urged to acquaint themselves with the boundaries of the ADIZ areas over which they will fly, and to bear in mind that changes and modifications are not unusual, and when such changes are the subject of suitable notice, the pilot is responsible for that knowledge.

For the benefit of those activities desiring to establish a comprehensive DVFR flight plan form, the following information is suggested for inclusion: Date; squadron (activity); identification code name, BuNo and type of aircraft; ETD from base (zebra time); track to operating area; GeoRef position of operating area; estimated time penetration (zebra time); altitude (outbound and inbound); true airspeed (knots); ETD from operating area (zebra time—must be within five minutes); ETA at base; name of base; accompanying aircraft BuNo's and call signs. Flight leader will sign.

The form should also include space for station operations to record the following information: Time off; time on; tower initial; clearance initial; Air Defense Control agency initial.

These, in essence, are the basic instructions outlining procedure for various operational conditions. Adherence to these rules will solve most of the problems encountered by the pilot in planning and in flying. However, as in other phases of flight operations, there are no concrete rules of conduct to cover all of the possible situations, and again it is the responsibility of the pilot to pre-brief both himself and the members of his flight in those procedures to be applied in the event of an emergency.

VF-173 Will Receive Furies

First FJ Squadron on East Coast

Fleet Air Jacksonville's VF-173 will be the first Navy squadron on the east coast to be equipped with the new FJ-3 *Fury*.

Thirty-eight of the squadron's pilots and enlisted men are currently flying and studying the sleek new fighter at NATC PATUXENT RIVER in anticipation of receipt of the North American plane this fall.

Led by LCdr. W. R. McClendon, VF-173 pilots have been flying the F9F-6 *Cougar* jet in nearly every section of the world.

Squadron's nickname is "Jesters."

Bails Out over Pacific

Project Cutlass Officer Ejects

The successful ejection from an F7U-3 *Cutlass* was effected when Lt. Floyd C. Nugent, of FASRON-12's *Project Cutlass*, was forced to leave his crippled plane near San Diego.

While on a routine training hop from NAS MIRAMAR, Nugent's plane suffered structural trouble and he found he couldn't land it safely.

After notifying the air-sea rescue unit at San Diego, he flew the plane around to lighten the load before bailing out. He ejected at 7,000 feet and landed unhurt in the open sea where a Coast Guard helicopter picked him up about two minutes later. This was his first bail-out in 14 years of service.

MODERN *gladiators of* VF-144 *sporting their Trojan helmets are LCdr. Charles S. Porter, XO, Ens. Charles E. Smalley, Ltjg. John T. Grover, and Ltjg. Robert E. Ball, Jr. They hit upon this decoration as new and appropriate.*

BOY *Scouts from the Roanoke-Norfolk area look over a display of typical Navy type knots on board the attack carrier USS Randolph. The Randolph played host to more than 100.*

Jet Bail-Out Made Safely

Ejection Seat Fired Below 2000 Ft.

Chalk up one more successful ejection from a Navy jet travelling 400 mph. Ens. L. T. Sharp of VF-13 is the pilot who did it.

"We were returning to NAS CECIL FIELD from a routine gunnery hop," related Ens. Sharp, "when suddenly my aircraft went out of control as I was losing altitude for a landing."

Seeing that his *Cougar* was about to crash and headed for a populated area, he adjusted his controls to change the plane's direction. Then he fired his ejection seat, sending himself crashing into a "nightmare of rushing air."

"When my 'chute finally opened it felt as though my chest had been ripped from the rest of my body," he said. "It seemed like only a few seconds before I touched ground."

Ens. Sharp discovered just how lucky he was when he reported back to his squadron. The two VF-13 pilots flying formation with him when his accident occurred told him that he was below 2,000 feet when his parachute opened.

"My training saved my life," commented Ens. Sharp. "Everything I did from the time my plane went out of control, I did by instinct."

Not only did his training save Sharp's life, it also saved the lives of many who might have been struck by the abandoned aircraft.

FROM TWO *far-flung corners of the earth, Marine helicopters prove their versatility in transport demonstrations. Above, a Marine 'copter aboard the light escort carrier, USS Mindoro during Exercise LanTRAEX, hovers before a take-off with a 1,450-lb. 75-mm pack howitzer. Meanwhile in Hawaii, men from the 1st Provisional Marine Air-Ground Task Force are making preparation to land with a 75-mm pack howitzer during their training exercise. Marines are using a Sikorsky HRS which is attached to Marine Air Group Thirteen.*

PARKING RAMPS MUST BE KEPT CLEAN, FREE OF DEBRIS WHICH MAY ENTER INTAKE OF ENGINES AND CAUSE EXTENSIVE DAMAGE

YOU LAND ON A MILLION-DOLLAR PLATFORM

Few pilots realize, when they bend the throttles for take-off, or bounce merrily in to land, just what it cost to produce that expanse of concrete or blacktop. It takes work, experimentation and planning to keep runways, taxi-strips and parking ramps smooth, level and in repair. Your airplane stands on a million-dollar platform.

Long, straight ribbons of concrete on a flat, wind-swept expanse of desert, such as exists in certain areas of the west, are not too difficult to build, but many of our coastal naval air stations were constructed on low, marshy areas. These require extensive original drainage and fill, as well as provisions for disposing of any and all excess moisture.

Basic requirements for a military runway are a good foundation, adequate drainage, and a durable surface, according to LCdr. Patrick J. Sheehy, CEC.

Whether the runway surface consists of a minor surface treatment, a plant-mixed asphalt, or the heaviest type of concrete, its stability, like that of a building, is dependent on its subgrade

GOOD SUBGRADE WILL PREVENT CONCRETE SURFACE FROM SAGGING, BUCKLING, AND WILL SUSTAIN WEIGHT OF FAST-SINKING JETS

EXPANSION JOINTS MUST BE SEALED AGAINST MOISTURE

JOINT SAWING MACHINE IN OPERATION AT MIRAMAR PLANE PARKING AREA

—its foundation. On a good subgrade, a relatively poor wearing surface will get by. On a poor subgrade, the heaviest type concrete pavement will fail.

The design and construction of a good foundation often present grave problems. Local drainage conditions may be unsatisfactory and difficult to correct, or the right materials may not be available locally. Even extensive laboratory or field tests may not accurately predict the results to be expected in actual construction.

For new construction, the selection of the site is all-important. The initial cost of the land is usually a minor part of the total cost of airport construction. If there is a choice between land with adequate drainage and good subgrade characteristics and land that is poor, yet less expensive, choose the good site. The cost of developing poor land will soon make clear it is no bargain.

When a project calls for extension of existing facilities, the designer must work with what is at hand. Under such circumstances, adequate money must be spent on the subgrade even if this means financially a comparable sacrifice in the quality of the surface. With a good subgrade, a relatively low type pavement will give long service under traffic conditions which would destroy a high type surface laid on poor subgrade.

An old professor of highway engineering was once asked to define the principles of good highway construction. He replied: "There are three principles. The first is, get rid of the water; the second is, get rid of the water; and the third is get rid of the water." While the reply suffers from the danger of over-simplification, it defines the major problem. Get rid of the water before it destroys the subgrade or washes away the shoulders.

Water is a great destroyer. One heavy rain can move more dirt in an hour than a grading contractor can replace in a day. Neatly dressed shoulders and ditch slopes are quickly cut with deep gashes as concentrated streams of water dig in. Principles of erosion control must be carried out for the protection of the new runways.

Bituminous concrete—asphalt to the layman—makes an excellent surfacing material for runway pavement, provided it is regarded strictly as a surfacing material and not as a part of the base. Since the material is naturally plastic, it tends to flow under concentrated loads. This tendency to flow varies with the depth of the surface. On a firm base, a thickness of three inches is enough.

66" CONCRETE DRAINAGE PIPES AT SAUFLEY

An asphalt surface thrives under traffic. The more stable the mix, the more traffic is required to keep it alive and sealed. Since traffic on a runway is relatively light and tends to be concentrated in the center sections, periodic rolling is standard practice.

Asphalt cannot be used for parking aprons, holding strips, or runway ends where planes will be standing, because it can be damaged both by the weight of the planes and the blast from jet aircraft. These limitations do not prevent its use in the middle sections of runways and taxiways.

At a recent symposium on airfield pavements for jet aircraft, at Port Hueneme, military and civilian engineers discussed the problem of damage to surfaces by jet blast, as well as from other causes. Results of a joint research by BuAer and BuDocks on jet blast damage were announced.

A large number of naval jet aircraft have the engine mounted with the longitudinal axis parallel to the ground. For these aircraft, there is little or no problem of blast. However, some naval jet aircraft, such as the F9F and F7U, have the engine mounted in such a manner that the longitudinal axis of the engine forms an angle of almost 12° with the surface, so the blast at a temperature of 300° to 700° Fahrenheit hits the pavement.

Now blast damage is not a constant problem. Normally, an aircraft will have its engine started in the

SCALED AREA AND MELTED JOINT FILLER RESULT OF JET BLAST

JET BLAST HAS GOUGED SHOULDER OF SANFORD WARM-UP APRON

parking area at very little over idle speed. Even when the pilot is ready to move, there is still no burning blast, for the throttle is advanced at that point to approximately 70% for a single engine and considerably less for twin engine types. Thereafter, the aircraft proceeds at approximately 40% power to the end of the runway.

It is at the end of the runway on the turn-up spot that blast becomes a problem. The plane will remain stationary for about ten seconds at that point while the afterburner is lit, and temperature and power checks are made. With surfacing such as that installed at our "master jet" stations, the normal procedure will not damage the areas involved. (*Beware of Jet Hotfoot*, NANEWS, April 1950.)

But at installations not specifically designed for jet operation, a blast mat of Portland cement can protect the asphaltic concrete take-off areas from full power turn-ups. Then it's up to the pilot to see that he is located so the blast hits the mat.

A relatively small amount of damage has been reported from fuel spillage, since small spillage evaporates rapidly without deteriorating the surface. But puddling of spilled fuel will soften the asphaltic binding. Here reasonably good housekeeping must be counted on to prevent serious damage of parking and servicing areas.

Beautiful as grass on an airfield appears, it is not there just to look pretty. It performs the very important job of keeping the soil where it belongs—off the runways, out of engines, and out of the drainage systems. In other words, to keep the airfield in one piece. Trying to save money by skimping on topsoil, fertilizers and seeding is certainly "penny wise and pound foolish."

Design of modern aircraft is necessarily a complicated science requiring involved mathematical calculations and elaborate model studies. But most of the problems of airport design and maintenance can be solved by applying generous quantities of horse sense.

This is particularly needed in the maintenance of runways which were constructed before the jet age. However, such fields are rapidly being modified for jet aircraft.

ANY MILITARY airfield involves the outlay of huge amounts of public funds. In the "master jet complex," the cost mounts rapidly owing to the specialized materials required. For example, one runway, with taxi-strips and apron, of the "master jet" installation at NAS CECIL FIELD cost $2,800,000. Investments like these are worth protecting.

TWO-FOOT LONG ANCHOR BARS FAILED TO HOLD MARSTON MAT AGAINST BLAST OF JET

SPILLED AVGAS DISSOLVED TAR BINDER

MOST *important part of graduation ceremonies at Williams AFB, Phoenix, to 2nd Lt. Gerald Collins, at least, was when brother, Ens. J. H. Collins of VA-195, pinned on the silver wings. Both came from enlisted ranks.*

'Copter Wins Stork Rating

Navy Pilots Assist in Emergency

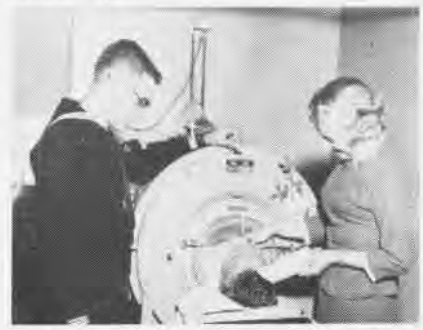
Theme song of navy helicopters may soon be: "Anything you can do, I can do." This time the whirlybird was first assistant to another bird—the stork—as it added one more deed to the ever-lengthening list of its accomplishments.

Coast Guardsman W. A. Cooper and his wife live on Oshima, a small island 20 miles from the Japanese mainland, and 65 miles from the Yokosuka Naval Hospital where Mrs. Cooper had been receiving pre-natal care.

Not unlike babies the world over, the Cooper baby decided to make his appearance in the middle of the night. When hospital care became an immediate need for Mrs. Cooper, a helicopter transported her from the remote island to the hospital.

Two helicopter pilots, on TAD from the USS *Manchester,* were dispatched from the NAF Oppima to Oshima. At top cruising speed, Lt. F. W. Lawrence and Ltjg. C. R. Smith rushed Mrs. Cooper to the Yokosuka Naval Base. A waiting ambulance hurried her to the Naval Hospital's maternity ward.

And the baby?—a six pound, 12 ounce boy.



AFTER *his crippling attack of polio, E. D. Hall, RD2, can count his friends by the ship load. USS WASP shipmates collected $1300. D. T. Dicks, RD2, led the delegation which presented the gift to Hall's wife, Dorothy.*

Instrument Training Ends

French Pilots Depart for Paris

After completing three and a half months of rigorous instrument and night flying training, three French pilots are on their way home.

FAWTUPac's detachment at NAS Barber's Point was assigned the job of training Ltjg. B. Capelle, CPOs P. Carro and P. A. Martin, who will form part of the nucleus of officers and enlisted men scheduled for the French Naval Air Corps' first jet all-weather low-visibility squadron.

Eleven Frenchmen in all have been trained at Barber's Point and Key West, Fla., under the MDAP.

• NAS Moffett Field—SecNav's Industrial Safety Award has been awarded to Moffett Field for the fourth time.

• NAAS Sanford—Detachment Easy of VJ-62 has received a commendatory dispatch from VAdm. Combs, Commander Sixth Fleet, for outstanding accomplishments during deployment in the Mediterranean area. O-in-C LCdr. Floyd F. Favreau broke the squadron record during the tour by flying 158.9 fleet operational hours in one month.

WHY DOES *the big fellow play the flute and the little guy the tuba? Cdr. H. C. Weart, CO, VP-2, and two crewmen, E. A. Anderson, AD3, and F. N. Sarcioni, AT2, compare mugs and ponder this old question. Mugs with insignia were part of order from a Japanese firm. Who ordered the largest sizes? Yep—You guessed it.*

P5M Landed in Rough Seas

Coast Guard Captain Makes Rescue

Veteran Coast Guard Capt. D. B. MacDiarmid landed a Martin P5M patrol seaplane in rough open seas recently to effect the emergency rescue of a Marine suffering from an attack of appendicitis.

The rescue took place about 110 miles off Cape Lookout on the North Carolina coast, in seas that were running in swells in two systems, the major system extending in length to about 250 feet in the particular area. When in phase, the two systems showed a maximum swell height of six feet.

Landing was made with full flaps and a power-on approach. The propellers were instantly reversed for a hard stop. The take-off was only slightly rough.

The patient, taken from an LST, was transferred to the Portsmouth Naval hospital for treatment and is recuperating after his operation.

TURBAN-*clad members of the famed North African Camel Corps and members of the French Foreign Legion pose against a background of swept-winged Cougars aboard the attack carrier USS Randolph during a visit at Algeria. Enroute to France to receive honors, the men registered wonder at their first sight of jet aircraft, elevators, large guns and planes' moving canopies.*

VP-16 NEPTUNES FLY NORTH ATLANTIC AREA

VP-16 PILOTS *Hahn, Haigler, Baxter, Campbell and Fry get into their anti-exposure suits at Keflavik prior to departing for a patrol.*

FLIGHT CLEARANCE *desk hums with activity as VP-16's Brown, Campbell, Hiser, Holzrichter, Hosier and USAF's Madley prepare clearances.*

PATROL Squadron SIXTEEN flies over the North Atlantic's arctic waters acting as the "eyes" of the Iceland Defense Force. Although VP-16's home station is NAS JACKSONVILLE, it is currently deployed to Keflavik, Iceland.

Led by Cdr. Paul J. Bruneau, the squadron operates P2V *Neptunes*. The outfit was activated in March 1951 as VP-741. When the VP-741 tag went back to the Ready Reserve, it was redesignated as VP-16 in February 1953. Although the primary mission of this patrol squadron is anti-submarine warfare, VP-16 also functions as a photographic unit, and as a weather reconnaissance squadron.

Planning and executing an over-water patrol that may cover more than 60,000 square miles of ocean area are complex operations under the most ideal conditions. When sudden weather changes, mountainous terrain and frigid arctic waters complicate the affair, such patrols become a challenge even to the professional over-water fliers.

The day for VP-16 begins at five in the morning for the flight crews. The crew members are picked up at their barracks and driven to their airplanes. Aircraft have been tested by the night maintenance crews, but fuel, oil, engine operation, electronic devices and control surfaces are checked again by the men who will fly the airplanes.

In the meantime, the pilots have been driven to base operations, where they file flight clearances, receive a weather briefing, and determine suitable alternate fields in case the home base should be closed by weather on their return.

By 0800 the pilots and flight crews are assembled in the hangar, donning their anti-exposure suits. The suits are bulky and uncomfortable, but they have earned the respect of VP-16 by their performances during ditching rehearsals.

While the flight crews are dressing, the supporting activities of the squadron are functioning, preparing flight rations, dispatching taxi signalmen, and notifying base radio of the departure of the airplanes.

The nine members of a flight crew normally include the plane commander, a co-pilot, a navigator, a plane captain, an aviation machinist's mate, an electronics technician, two radiomen, and an ordnanceman.

CALLAHAN *and Daniel prepare flight rations for P2V Neptune flight from Keflavik base.*

The plane captain, machinist's mate and the radiomen take turns "on duty" during an extended flight, thus keeping the crew at peak efficiency for many hours. The machinist's mate also helps the navigator by taking drift sights, and the off-duty radioman may spell the technician at the radar scope. The ordnanceman spends part of his time preparing in-flight meals for the crew.

After patrols are airborne, other aircraft are readied for flight. A photographic mission or a training flight may be scheduled. At times, "Ice Patrols" are flown to plot the position of the ice field in the North Atlantic waters. And, since even at an advanced base training continues, VP-16 augments classroom work with local training flights.

NOT *least among* VP-16's duties is logging the weather. In the far reaches of the Arctic, weather stations are few. Information on actual conditions supplied by flight crews is invaluable to the aerologists in forecasting storms that will eventually reach Europe, and in planning flight routes.

When the patrols are over and the aircraft return to base, the day's work is just beginning for other elements of VP-16. Flight crews are debriefed by the Air Intelligence Officer. Pilots and plane captains report any discrepancies in the aircraft. Dispatches are sent, engines changed, tanks fueled, and the cycle begins again.

By Lt. Neil Craig

IN THE PHOTO PANTHERS' DEN AT MCAS MIAMI

MARINE Photograph Squadron Three, based at MCAS Miami, has instituted new developments and procedures to produce better aerial photography for combat use.

To anyone who may suggest that such accomplishments cannot be done at squadron level, VMJ-3 maintains that its training syllabus for neophyte "shutter-bugs" speaks for itself.

The squadron is now under the command of LCol. Frank C. Thomas. When it was commissioned on June 1952, the pilots and the photo technicians of the squadron were for the most part old hands at the photography business. Almost all were veterans of WW II, the hard training years that followed, and Korea. The knowledge of photography possessed by these men was fairly encyclopedic. (That's a lot.)

PFC. *M. L. DaWalt fills tip tank with fuel in preparation for a photo reconnaissance hop.*

Since replacement drafts for overseas photo units are furnished when required by VMJ-3, the question recently arose as to which of the experienced pilots would return to Korea, and which would train the new pilots scheduled to join the squadron. Finding the answer was no easy job, but squadron personnel put their respective heads together and worked out a solution.

At present there are 23 officers and 135 enlisted men in the squadron. Of the officers, four are "ground crunchers;" the rest, pilots. Of the pilots, six are "Old Timers" who form a cadre to lead the second lieutenants who are new to aviation, the Marine Corps, and photography.

Upon the completion of flight training, most pilots dream of becoming *Mig*-killing fighter pilots, and in general, these dreamers possess all the necessary aggressiveness, eagerness, and ability to perform their fighter pilot duties. Only by chance does the new pilot consider aerial reconnaissance, and then he usually relegates it to second place.

If one fully understands the hazards of aerial reconnaissance, it is clear that tremendous demands are made on photo pilots. Flying unarmed over enemy territory requires more than skill, it takes a tremendous amount of stamina. There is no place for scorning photo pilots' duties.

VMJ-3 has sturdy allies in recruiting. These are their sleek, trimly painted F9F *Panther* jets. In Miami, these jets are a deciding factor in enlisting new men or gaining replacements, for VMJ-3 is the only jet-operating squadron based there. To train and be a member of VMJ-3 makes the mundane pill of "no guns" easier to swallow; and new members assume the attitude, "This is for me!"

There is plenty to study. Many manuals pertaining to the various phases of aircraft operation, safety, SOP and technical bulletins are read. In all too short a time, that take-off 100 percent is indicated, and the jet is airborne for a checkout flight by the new lieutenant. The squadron makes sure that new pilots flying unfamiliair aircraft are thoroughly checked out on the technical aspects of piloting the F9F.

After several sessions of "snapping in" in the cockpit, the blindfold check is given to make sure that the pilot knows the position of all switches and instrument locations. When the pilot feels he has studied sufficiently, he is

OXYGEN *tank of photo plane is filled by Cpl. Colledge as mechanic wipes down the canopy.*

given a closed book examination on the *Panther* handbook in which the passing mark is 100 percent.

With familiarization flight number one in sight, the fledgling photo pilot is thoroughly briefed on it by one of the experienced men. Every minute of the flying time is accounted for, so that valuable lessons will be learned and no premium training time wasted. Familiarization consists of five flights of one-and-a-half hours duration. Thus the pilot acquires first hand knowledge of the capabilities and limitations of the aircraft and is trained in field traffic procedures.

After flight familiarization, the photographic and instrument portion of the syllabus are begun. Two types of training hops have been combined in the interests of economy. The "chase pilot" requirement makes it necessary for all flights to become a two-plane formation; both pilots split the period under the hood.

Scheduling dual-purpose flights guarantees fulfillment of the syllabus requirement of 16 instrument hours and 17 photographic flights. The photographic missions are planned to permit the pilots to plan, fly and practice every probable type of aerial photography within the capability of the squadron's equipment.

Training has been designed to simulate as nearly as possible, conditions and operations in a combat situation. With the greater part of the United States to choose from, target assignments are usually interesting and varied.

The only restrictions on flights are time and weather. Normally a mission to one of the western states is accomplished within 12 hours from time of launch. The pilots make a pre-dawn take-off, proceed to target, take the assigned pictures, land and refuel. When necessary, they return to base the same day.

All pilots recently participated in a valuable training exercise. The station helicopter was made available to demonstrate rescue-and-evacuation techniques used by the rescue team. The pilots launched in rubber boats were "rescued" and returned to shore.

MSgt. C. T. Nickell has improved the motion-compensating magazine by designing it so that it will accommodate all sizes of cameras. Utilizing Nickell's mount, the squadron, flying photo missions at 8,000 feet at speeds over 500 knots, has produced perfect negatives. A 36-inch lens using only 1/50 second shutter speed was used in these tests.

Present techniques and procedures are being constantly studied and revised in the unceasing effort to produce better aerial photography and to decrease the time between request and delivery. To date, the shortest time involved between a radio request for missions to an airborne aircraft to take a required picture and the final delivery of the picture to the requesting agency is 10 minutes. Squadron personnel believe that this time can also be beaten by a substantial margin.

VMJ-3 is utilizing its manpower and aircraft to their maximum potential in an effort to send as many thoroughly trained men to the Fleet as required.

BEFORE *each hop, Sgts. McCourtie and LaSalle check to see cameras are operating properly.*

CPL. *Pierce dries strip shots of aerial photographs as Cpl. McQuade busies himself at the negative dryer. The photo lab is a busy place.*

HARTLEY, *Peck, Mikelson and Bell scan aerial photo maps after hop. Squadron conducts strenuous training program for neophyte "snappers."*

STATION'S *helicopter demonstrates the proper way for pilots to make efficient pick-up.*

VP-5 Has 'Hunter College'

Training Program Pays Dividends

Marsh's book as well as Brumbaugh's on American colleges and universities lists Hunter College as a municipally-owned institution of higher learning in New York City.

Obviously neither of these authorities has heard of "Hunter College" at NAS JACKSONVILLE. This exclusively all-male school, currently headed by Ens. D. E. Hunter, information and education officer of VP-5, was founded in 1950 when the squadron was transferred from Whidbey Island to Jax.

The Navy "College," which naturally restricts enrollment to officers and men of VP-5, has increased in membership each succeeding year until today it boasts 361 students of a possible 367, 98% of the officers and men of the squadron.

There are 278 enlisted men preparing for the fleet-wide competitive exams. Seventy of these men are enrolled in USAFI. Many of them are taking radio and television courses preparing themselves for civilian life. Others are enrolled in mathematics and business administration.

During the past year, the educational program has enabled 10 sailors to receive high school diplomas or equivalency certificates.

VP-22 Flies Mercy Mission

Drop Made in Foggy Alaskan Seas

VP-22 flew an A/S rescue mission recently when one crew delivered vital medical supplies to a Danish merchant ship 700 miles at sea off Alaska.

Flying a P2V-5, Lt. J. R. Follas took off from the Kodiak strip at 1235 and completed the flight ten hours later to set a record non-stop flight for such an assignment.

After reaching the ship, the crew was unable to establish visual contact with the merchantman because of extreme fog, and the first pack dropped was not recovered. With the assistance of radar, the pilot was able to make his second drop close enough for the supplies to be located and picked up by a whaleboat from the ship.

Other members of the *Blue Goose* squadron who participated were: Ltjg. R. F. Thomas; Ens. W. R. Dolan; C. O. Eschman, AD2; H. L. Fix, AF2; J. W. Chase, ATC; T. R. Doyle, ATAN; B. R. Hidle, AOC; and L. M. Glenn, ADC.

CHERRY *Point Marines, dressed in uniforms of 1812, 1776, and 1847, study F1-2 as 2Lt. Robert E. Lee explains operation of the jet.*

● Capt. J. T. O'Callahan, Navy Chaplain Corps, holder of the Congressional Medal of Honor for heroic action aboard the USS *Franklin*, recently received his copy of the color film, *The Saga of the Franklin*. The Navy presented it in the name of his shipmates.

Anacostia AC's Save Jet

Lost T-33 is Vectored to Andrews

Two Anacostia tower operators have been credited with saving an Air Force T-33 jet trainer and possibly saving the life of its pilot.

The pilot, enroute from Smokey Hill Air Force Base at Salina, Kans., was on a routine cross country flight when he found himself lost in the vicinity of Martinsburg, W. Va.

Sitting in the tower at Anacostia, George Hampers, AC1, and Oscar Burt, AC2, heard the pilot report. They immediately alerted the Washington area direction finder net, and then made the initial contact with the plane but were unable to make voice contact.

Washington National Airport was called on to assist, operators there relaying instructions received from Hampers and Burt to the lost jet. Since the plane was extremely short on gas, emergency permission was given to bring the plane in over the downtown Washington area.

The pilot, receiving constant instructions from Hampers and Burt, finally spotted the Capitol building and proceeded to Andrews AFB under surveillance. He landed with 102 pounds of fuel aboard. In jet flight time, that's something under five minutes.

Escape from Crippled Jet

Pilot Lands Wheels-up at Moffett

Seconds before his jet burst into flames, following a successful wheels-up landing, Lt. D. W. McCracken of VC-3 scrambled over the side and escaped injury.

On a routine night training flight, McCracken had been airborne about ten minutes and was on the downwind leg of his approach to the runway. Two muffled explosions followed by a decided loss of thrust, and coupled with the smell of smoke in the cockpit caused him to make a hasty decision to eject. A re-appraisal of the situation—1,500 feet altitude, 200 knots airspeed, and fairly close in—reversed his decision.

Using a row of taxiway lights as a target, he lowered his speed brakes and landed with little damage to the plane. As the plane slid to a stop, McCracken blew off the canopy, leaped from the plane and ran. A few seconds later, he heard a pop and then a loud explosion. A glance over his shoulder revealed his jet enveloped in flames.

Information is not available as to whether McCracken is still running.

Snake Bite Victim Saved

Airways Cleared for Mercy Flight

Bitten twice in the arm by a rattlesnake, a construction worker from Canaserga, N. Y., lay near death, and serum was needed to save his life. The nearest supply was at Buffalo.

When the Navy at NAS NIAGARA was called on for an emergency airlift, Ltjgs. James S. Harrington and J. J. Schneider, members of Reserve squadron AAU-853 on annual training duty, volunteered. By the time flight plans had been filed, two TBM's were ready for the flight. Immediate clearance enabled the pair to make a speedy flight to Buffalo.

Upon arrival there, a policeman handed Harrington two small packages which he tucked into his flight suit. Airborne once again, the two planes headed for Elmira. Flying at maximum cruising speed, they arrived at their destination shortly after midnight. A waiting police car took the serum from Harrington and sped it to the victim, who is recovering.

The pilots said, "Boy, we sure were a VIP flight that night, no traffic, and cleared all the way down the line."

DRONES DRILL DEAD-EYE DICKS AT DAM NECK

RESIDENTS around the Dam Neck, Va., area often look skyward when they hear the steady buzzing of what sounds like a huge angry hornet. In reality, they are listening to the work and effort of one of the Navy's little known squadrons operating from the Fleet Air Defense Training Command.

VU-6, under the command of Cdr. Jay V. Lancaster, is entrusted with the job of keeping Atlantic Fleet surface-to-air and air-to-air gunners' eyes in sharp focus. These very valuable, but little publicized training aids are being used throughout the Fleet for the improvement of anti-aircraft gunnery. VU-6 provides "birds" for training cruises and individual ship gunnery off the coast of the Virginia Capes, in the Mediterranean, at Guantanamo and wherever they are needed by the Atlantic Fleet.

C. H. *Harris, ATC (L) and H. J. Baxter, AT3, check the response of the radio signals.*

OFF *goes the "bird" to be picked up and controlled by a remote unit aboard a carrier. The drone traverses the length of the mobile catapult in less than a second from the time of firing.*

Drones are launched from the Dam Neck area for air-to-air gunnery for VF squadrons stationed at Oceana and Marine outfits from Cherry Pt. The F7F-2D *Tigercats* maintained by VU-6 take over control of the "bird" after it leaves its launching platform and guide it to the firing area. Here fighter pilots are taught the trade secrets of effective gunnery as the drone is put through its paces by an operator with a remote control unit in the *Tigercat*.

Designed to fly at speeds of 200 knots for about 90 minutes, the "bird" is a difficult and elusive target. If hit, the "bird" will automatically open its own 'chute and float gently to earth or water. Maintenance is never ending, for after recovery each drone is overhauled.

In addition to providing targets, VU-6 evaluates and tests experimental equipment at FADTC DAM NECK. New types of drones, automatic pilots, and remote control equipment are tested for operational use.

Within the squadron are 10 KD units. Headed by an OinC, each unit consists of ten enlisted men and forms an independent operating group, carrying their own "birds", catapults and equipment. The administration, maintenance, and planning of the squadron and its outlying units takes place at Norfolk, although parts of the squadron may be 3,000 miles away.

R. P. *Kruger, AD2, Calderaro, AN and R. W. Powell, AD2, check engines after recovery.*

Day after day this important phase of training goes on helping shipboard, ground and aerial gunners to hone a sharper edge to their combat weapons.

UTILIZING *compressed air, crew members of VU-6 start the "bird" for its flight while other members check the radio control unit in the background. "Birds" fly for 90 minutes at 200 mph.*

DESTINATION UNKNOWN

In a moment, it will be time to start engines. The small huddle of men talking quietly in the shade of the big P2V *Neptune's* wing drift apart. Three walk to the midsection of the plane, duck under the belly and disappear, one by one, up through the hatch.

The other three—pilot, copilot, and crew chief—stroll around the plane in a brief but searching preflight inspection, then clamber aboard through the forward hatch.

Moments later, the engines, one followed by the other, cough, sputter and roar to life. The hatches close, the flaps come up and the bomb bay doors silently come together.

DURING *the flight, Paul Munchus monitors the equipment installed in after section of the P2V.*

Inside, the pilot picks up his microphone. "Lindbergh Tower, Navy 950 requests taxi and take-off instructions."

"Roger, 950, you are cleared to taxi across the active runway into run-up position on runway 27."

In run-up position, the pilot turns the plane into the wind, locks the brakes and methodically checks his flight instruments, engine instruments and controls; the copilot reads off the items from the check list.

"Lindbergh Tower, Navy 950 ready for take-off."

"Roger, Navy 950, cleared to take the active runway."

The pilot taxies the plane out on the runway, lines it up with the runway heading and takes a quick last look at his instruments before adding power. With the throttles open, the two engines roar as the P2V gradually picks up speed. In a moment, the twenty-ton aircraft is airborne.

AFTER *the flight, the pilot goes over chart on which copilot plotted actual track covered.*

Up to this point, the routine has been completely normal. Thousands of aircraft, operating from hundreds of military and commercial fields throughout the nation, follow the same general procedure daily.

But there is one marked difference between this and other flights—the Ryan Aircraft Company pilot does not know his *destination*.

Keeping Pilot A. P. Coha "in the dark" insofar as his destination is concerned is the Electronics Section's somewhat unorthodox, but highly effective method of obtaining comprehensive data on the reliability and accuracy of a new Ryan electronic navigational system.

Coha's duties as the plane's navigator cease as soon as the aircraft arrives over a predetermined landmark at a predetermined altitude. At that point, the Ryan navigational device takes over. To reach his unknown goal, Coha need only fly an aircraft heading which will maintain the course error indication on his cockpit instrument panel at zero.

The navigational device and the three electronics engineers riding along to monitor and record its performance will inform Coha of his arrival at the unknown destination when he gets there.

RYAN *engineering pilots, Al Coha and Dick Yoder, prepare to take off on their unusual mission. Instrument that will guide Coha to his unknown destination is located at extreme top center.*

HAND *poised over the button that triggers timing devices in aircraft. Norris squints through drift sight. Munching monitors gear.*

SITTING *at the navigator's table in the "flying lab", Bruce Clapp is busy checking his navigation with that of the electronic device.*

Because Coha does not know where he is going, he is not hindered by the normal tendency to "assist" the device by flying "pilotage" or contact navigation. The result is an extremely accurate check of the performance of the navigational device under actual flight conditions.

This is one of a continuing series of tests conducted during the advanced evaluation of Ryan's airborne navigational equipment in its only "true" environment—the air. For this purpose, the P2V was lent to the company by the Navy. A flying laboratory, it enables Ryan engineers to maintain a close check on electronic equipment performance under actual in-flight operating conditions from the runways of Lindbergh Field, immediately adjacent to the Ryan plant at San Diego.

The electronics engineers who man these "flying labs" seek not only to establish the adequacy of final equipment, but also to develop new techniques which will eventually be embodied in more advanced designs.

Aboard the plane, the engineer in charge of the three-man flight test team from the Electronics Section, E. Bruce Clapp, spends the majority of his time during the flight in the navigator's compartment. From this vantage point, he can observe and analyze quickly the data presented in visual form on the navigational computer-indicator.

Clapp, of course, knows the P2V's destination and "sets up" the navigational device with the information it requires to instruct Al Coha along the course line via the pilot's direction indicator on the instrument panel. As a matter of fact, everyone aboard the plane knows its destination with the exception of the pilot.

COPILOT Dick Yoder has a map on his lap and is keeping a critical eye on the navigation. Prior to the flight, he checked the weather, filed the flight plan and studied the route for the landing strips that might be available in the event of an emergency.

In the after section, Warren Norris is perched over a drift meter. Periodically, he bends over the sight to squint at the ground below. Finally, he sees what he is looking for, fumbles for the intercom mike on his lap and begins a "countdown."

"Ten seconds . . . nine . . . eight . . . seven . . . six . . . five . . . four . . . three . . . two . . . one . . . zero."

As the count reaches zero, Norris presses a button near the drift meter. This triggers simultaneously all the timing devices installed aboard the aircraft. The Polaroid camera in the navigator's compartment snaps a picture of the present readings on the navigational instruments; a large aerial camera mounted in the floor of the plane snaps a photograph of the check point Norris sees below; brush recorders indicate the roll and pitch of the aircraft. Clapp hears the signal over the intercom, checks the time and marks the position on the map.

This, then, is the data the engineers are seeking. The photographs, the recording paper, Bruce Clapp's maps, as well as the notes and observations of all of the men aboard the aircraft will be analyzed on the ground following their return. The same procedure, repeated dozens of times over well-known check points along the course line, will provide the quantity of data required to compute the navigational system's accuracy and reliability.

THE FLIGHT test team has been conducting these tests on the Ryan equipment for more than a year over every type of terrain and in virtually all kinds of weather. It is now in the advanced phases of the evaluation program. When the tests are completed, the bugs eliminated, "zero error indication" will replace compass heading.

The plane has been airborne for some time now. Bruce Clapp, who has been watching the mileage indicator on the navigational instrument display for the past few minutes, picks up the intercom mike and calls Warren Norris. "What do you see through the drift sight, Warren?"

"We're right on the money, Bruce," answers Norris.

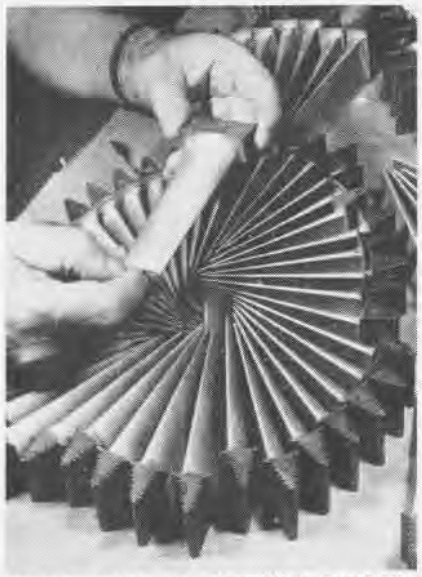
"Good. Now that we've arrived, shall I tell Al where we are, or just let him guess?"

Norris laughs. "Let him figure it out. He usually guesses it before now."

"Right," Clapp answers. He calls Al Coha. "Al, we're directly over our destination now. Take a look over the side and tell us what it is."

There is a pause as Al banks the plane to get a better view of the ground beneath them. "Well, whaddaya know!"

WASPALOY DEVELOPED FOR TURBINE BLADES



FORGED BLADE IS CAREFULLY INSPECTED

A NICKEL-based, heat-resisting alloy developed at Pratt & Whitney Aircraft, has boosted the power rating of P&WA's leading jet engines.

P&WA reports that the new alloy, called "Waspaloy" after the series of Wasp engines, is being used in turbine blades for the J-48 turbojet, a centrifugal-flow engine with a basic thrust rating of 7,250 pounds. With its heat-resisting properties, Waspaloy stands up much better under the severe stresses of high temperature operation than previously used blade materials. These properties permit the J-48 to operate at higher turbine temperatures for longer periods of time and to deliver more thrust.

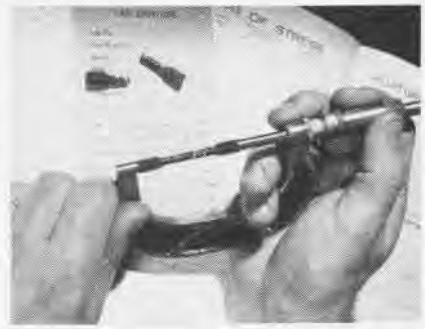
Military aircraft powered by the J-48 include the Navy's Grumman F9F-5 *Panthers* and F9F-6 *Cougars* and the Air Force's Lockheed F-94C *Starfires*.

The development of Waspaloy began in the fall of 1949 when P&WA engineers sought ways to improve the J-48 and increase its power. The obvious way to increase the engine's power was to burn more fuel, but by so doing the turbine blades would be subjected to a combination of high-temperature conditions that exceeded the safety limit imposed by the strength of the blade material then being used.

What was needed was an alloy capable of withstanding the severe stresses at temperatures at least 100° F. higher than the 1,300-1,400° maximum then permissible. At temperatures hovering around 1,500° F., this alloy would have to resist fatigue, creep or stretch, rupture, and other variables arising from high-temperature turbine operation.

When revolving at full speed, each blade is subjected to an outward pull equal to about 25,000 times its own weight. This is roughly equivalent to having eight average-sized automobiles hanging from the tip of each blade.

The basic formula for Waspaloy was worked out by R. H. Theilemann,



MICROMETER MEASURES WASPALOY SAMPLE

P&WA development metallurgist. Using more than 50% nickel for a base, Thielemann added chromium, cobalt, molybdenum, and small amounts of titanium and aluminum to give the alloy stability and hardness.

Allegheny Ludlum Steel Corporation was assigned the initial production of the new alloy and by the end of the year, this company had melted, poured into ingots, and processed into rolled bar stock the first quantities of Waspaloy. The first batch of rough forgings for blades was produced by the Utica Drop Forge & Tool Corporation and sent to P&WA's materials development laboratory for rigorous testing.

Hundreds of tests were made at P&WA to establish the new material's resistance to creep, stress, rupture and fatigue. These tests determined the best composition and also the most effective heat treatment to develop high heat-resisting properties.

Early in 1950 the first proving run of a J-48 turbine fully fitted with Waspaloy blades was conducted in one of P&WA's experimental engine test cells. No other engineering change in the engine was made aside from the blades.

TURBINE WHEEL IS CHECKED WITH GAUGE

This single change produced an increase of thrust of more than 10% over the engine's previous basic thrust rating. Later, when additional design changes in the J-48 called for even higher temperatures, Waspaloy turbine blades performed successfully.

PRATT & Whitney Aircraft and the producers of Waspaloy have conducted further tests to improve the processing of the new alloy. The stress rupture life of blades made by a vacuum-melting process has been increased two and a half times over conventionally treated material. The ductility of the vacuum-melted blades proved to be superior to the conventional arc-melted blades. The stress rupture value of the vacuum-melted blades increased the minimum of 40 hours at 1,500° at 32,500 pounds to a minimum of well over 75 hours. The blades have been run in J-48 engines at P&WA for more than 2,000 hours with outstanding results. Waspaloy forges readily and can be machined on the same tools P&WA has used for other alloys.

Pratt & Whitney Aircraft has made Waspaloy available to other jet engine manufacturers without license fee or royalty. Several engine makers are considering using this new P&WA alloy.

Adjustable Engine Stand

LCdr. David Ascher, NAS NIAGARA FALLS Aircraft Maintenance Officer, has devised an adjustable wooden stand capable of handling any aircraft engine from an R-985 to an R-3350.

Unique feature of the stand is its ability to adjust the engine crankshaft support. Also adjustable forward, aft, and sideward are the blocks that support the weight of the engine by the lower cylinder rocker boxes. Since the base of the stand is slotted, it is easy to raise it with a forklift.

The value of the stand was demon-

AN R-1830 ENGINE IS PUT ABOARD R4D

strated recently when NAS NIAGARA FALLS was called upon to ship an engine. Suitable overland transportation for the bulky metal engine container was not readily available, but by using the adjustable wooden stand, men loaded the engine into an R4D in a matter of minutes and it was airlifted.

Oil Strainers Washed Fast

HICKAM AF BASE, HAWAII—"Rub-a-dub-dub. . . . Five strainers in a tub!" Such is the song prompted by a time-saving device constructed by VR-8's engineering department.

With a small modification of a standard washing machine, a problem has been eliminated which took many man-hours, namely, the cleaning of oil strainers, a part of the R7V *Super Constellation*. These strainers consist of many doughnut-shaped rings which, until recently, have been cleaned individually and by hand during each periodic aircraft check.

Now, with the simple construction of five lead pipes welded around the spinner of a washing machine, five of these strainers are turned out in five minutes. The doughnut-shaped strainers are straddled around the pipes and, in a solution of gunk and solvent, cleaned 50 times faster with a thoroughness which could never be achieved by hand.

STEERABLE WHEEL CUTS HANDLING TIME

F7U Steerable Nose Wheel

Steerable nose wheels for greater maneuverability on carrier decks and landing fields are being installed on production F7U-3 *Cutlasses*.

While steerable nose wheels are standard equipment on most multi-engine planes, the *Cutlass* is the first Navy fighter plane to have such a nose gear installation. Others are equipped with free-swiveling wheels which permit ground maneuvering only by use of main wheel brakes.

To make the hydraulic steering mechanism operative, the pilot pushes a button on his control stick. Then by pushing forward on his rudder pedals, he can turn the nose wheel in either direction up to 60°. This enables him to steer the plane like an automobile, for quicker positioning on the catapult or other maneuvering.

When the *Cutlass* pilot lowers his landing gear, the steering mechanism automatically turns on. The nose wheel is held in a straight-forward position until it touches the deck. Then the pilot can turn it by pushing on the rudder pedals.

Carrier tests made with the new gear revealed that almost a minute could be cut off the time between a plane's touchdown on the deck and its stowage below decks.

The torque link steering mechanism is manufactured by Bendix.

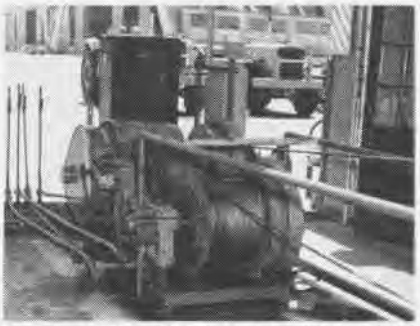
● NAMTC PT. MUGU—Cdr. W. D. Harrington, Island Facilities Officer of San Nicholas Island, flew the first trip to the island from Pt. Mugu on the inauguration of daily commuter flights.

Aids Beaching Operations

Impromptu ribbon cutting ceremonies were held recently when Cdr. Fred P. McDaniel, FASRON-110, initiated a new phase of seaplane beaching operation at NAS North Island, San Diego.

A stationary "electric mule" has been installed at FASRON-110's main ramp to launch and retrieve aircraft flown by local patrol squadrons. The new arrangement renders obsolete the previously used system which required the use of two shop tractors working as a team.

Power for the new unit is supplied



GUARD RAILS ENCLOSE MOVABLE PARTS

by a 40-hp electric motor with its output boosted to a 400-hp equivalent by gear ratio changes. Motor, winches, and cable drums are mounted on 6' steel rails spaced 3' apart at the head of the ramp on the port side. Securing bolts are set six inches into the concrete surface of the ramp.

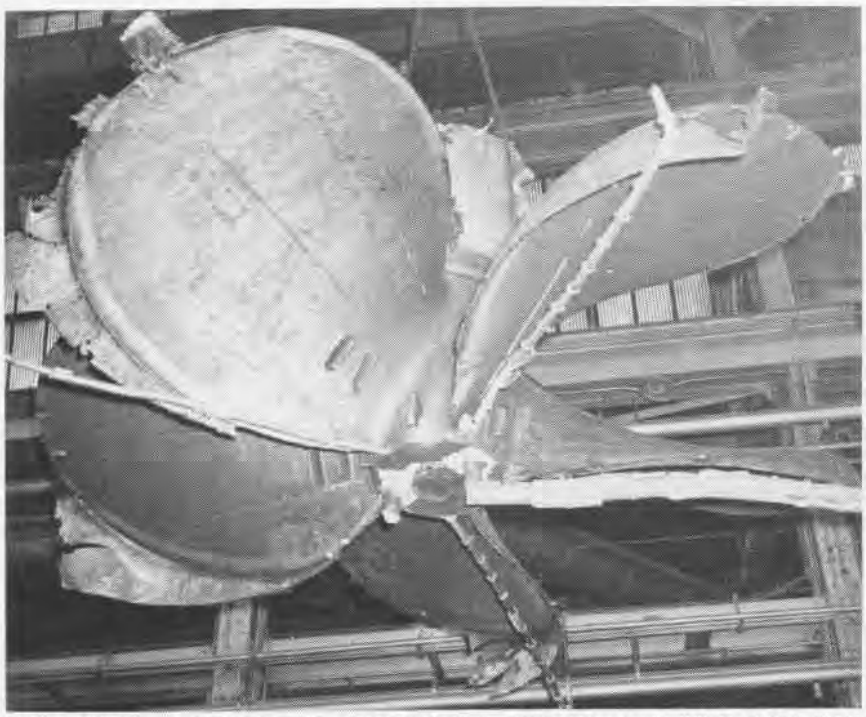
Port lines run directly to the buoy; starboard lines are rigged to cross diagonally beneath the ramp and out into the water. Each cable is controlled by a separate set of clutches and brakes, enabling operators to maneuver the buoy to any desired position.

By salvaging the entire apparatus from a floating crane, 110's Operations Office was able to keep cost at a minimum. Expenses were limited to the purchases of guard rails and installation materials.

Beaching operations, now greatly simplified, will reduce the chances of mishap and accident. Additional drivers and tractors, released for new duties by the ramp alterations, are now available for other beach crew functions.

● NAS NEW ORLEANS—Recent guests of NAS NEW ORLEANS were 120 officers and men off the Swedish Navy cruiser *Alvsnabben* during an Open House.

HUGE PROPS MOLDED FOR USS SARATOGA



WITH POURING EQUIPMENT STILL ATTACHED, THE PROPELLER IS REMOVED FROM MOLD

IN ONE of the largest operations of its kind ever carried out in a naval shipyard, eight 21-foot, five-bladed propellers have been cast at the Philadelphia Naval Shipyard for the USS *Saratoga* (CVA-60).

Designed for the huge 60,000-ton carrier, now under construction at the New York Naval Shipyard, the propellers weigh 123,500 pounds each. The pouring of the manganese bronze into the mold takes 33 minutes, and the props are allowed to cool for a minimum of 12 days.

Four of the propellers will be used for propelling the *Saratoga*, and four will remain in reserve as spares.

With the exception of the zinc content to correct for alloy losses, the bronze is salvaged material accumulated over the past from scrap propellers and is stored in one-ton ingots.

The mold for each blade was constructed separately from a single-blade pattern and, in order to prevent pinhole porosity, tile gates were placed under each tip of the blade to increase the rate of heat transfer. Such gates allow accumulated air or steam in the mold to escape without allowing debris of any kind to enter. Since such a mold cannot be dried by standard foundry methods, a minimum of seven days' drying time was required before the mold was assembled.

The eight propellers are in the process of being bored and shaped.

Jax's Hot Aerial Marksmen

Stetson Sparks Program with Film

Take a look at the gunnery record for the Atlantic Fleet over the past three months, and you will find that it has been shattered time and time again.

Six different FAIRJAX *squadrons* have broken the AIRLANT gunnery, rocketry and bombing records during that time in exercises at Gitmo.

One of the men responsible for such an impressive record is LCdr. J. B. Stetson, ComFairJax Staff gunnery/training officer. He reported aboard four months ago on TAD and soon after initiated a new and entirely different program for training pilots to shoot. He formed a new watchword for pilots flying under ComFairJax, it was "teamwork."

Movie film was used to record the shooting and assess the results of a firing run. Lectures were given on exact procedures and more precise methods of determining the results. A regular flying pattern was introduced—each plane having a definite position in the pattern of attack.

After long hours in the air as well as in the lecture rooms, his program paid dividends.

With his new program well integrated into the training syllabus of ComFairJax, Stetson turned the reins over to LCdr. Julian Arnold, Jr., and reported to the Naval War College.

PONDERING *feasibility of twin-cockpit training planes for future twin NavCads with same instructor is Ltjg. Herrin. Bill and Bob Barnett started training together, soloed simultaneously.*

Target Towing Toppers

Detachment Plays the 'Enemy' Role

How does it feel to be the "enemy" all the time?

Members of ComFAirJax VJ-4 detachment can answer that. Lt. Henry G. O'Neill, OinC, sums up the squadron's outlook by saying, "It's good duty, but I think that all of us will be glad to get back on the 'Sheriff's Posse' and shoot at the other fellow for a while."

Flying JD *Invaders*, the detachment is composed of one officer and ten enlisted men. They are assigned the task of being an aggressive "enemy" force and providing airborne gunnery targets for ships and aircraft.

Sparkling in an array of colors,—blue, orange and red,—the *Invaders* tow huge 30-foot targets for ships and aircraft off the coasts of Florida and Georgia. Here, trailing at 7,000 feet, the targets are subjected to fire of everything from 50-cal. machine gun bullets to eight inch shells.

On a normal flight the JD's carry 12 targets, towing them one at a time. If a ship requests it, the planes will fly over while the ship fires at the sleeve and then drop the target close by so the ship can pick it up to check it.

AVIATION ORDNANCE

Detailed Reports Needed

BuOrd is in receipt of several RUDAOE's from fleet activities involving explosions or accidental firings of 20 mm aircraft guns in both turret and fixed installations. In many instances, the information in the report by both the originators and the investigators conflicts or lacks detail.

BuOrd desires to establish the exact causes of these accidents in order to analyze them with a view to modifying design or procedures if that course is indicated. Reports should always be submitted in detail accompanied with photographs of damaged and broken parts or, if available, the broken parts themselves. Reports should be submitted on NavOrd Form 147.

Tow-Target Device at Jax

A native Jaxon attached to VF-174, at NAS Cecil Field had just offered a solution to an ordnance problem that's been puzzling Navy airmen for nearly three years.

Edwin R. Farady, AOC, has worked out a successful method for towing and releasing banner targets from his squadron's F9F *Cougar* jets.

VF-174's *Hell Razors* have been experimenting with various towing methods since 1951 when they received their first *Cougars*. Their F9F's are not equipped to perform this task.

One not-too-successful method they employed was attaching the tow line to the tail hook of the aircraft. To release the banner target the tow pilot would simply drop his tailhook. This proved impractical and dangerous when one tow pilot needed his tailhook to make an arrested landing.

Farady's ingenious, yet relatively simple, towing and releasing device is a stripped-down, obsolescent bomb rack.

It is mounted beneath the *Cougar's* fuselage through the catapult hold-back hook. An electrical lead, which is connected to the suspension hook that releases the tow target, is plugged into the after section light receptacle. Electrical release of the target is accomplished by means of controls in the cockpit.

The FAirJax squadron has tested and used this rack extensively this year. Up to the present time, it has never failed to release properly.

Shortage Spurs Ingenuity

MCAS Kaneohe Bay, T.H.—Because of the shortage of certain equipment, a new device was made.

MSgt. Thomas M. McAuliffe, serving as engineering chief with Helicopter Squadron 361, was finding it hard to obtain a hydraulic test stand each time it was necessary to test and rig the rotor head controls on his HRS-2 helicopters.

Then, at a rummage sale, in Honolulu, he saw an old washing machine for sale and checked its electric motor. It appeared to be in good condition. If it didn't work, he would be out only $2.00.

Back at the hangar, he built a portable hydraulic system, using the washing machine GE 110-volts, 60-cycle motor as power which he attached to a spare hydraulic pump and began his tests. Beforehand he was a little worried about the motor's power, because it gave only 1,745 rpm and a constant 1,000 pounds of pressure was needed, but on the first test run it proved capable.

"As a matter of fact," McAuliffe said, "the portable job works better than the *Mule*, and it weighs only 31 pounds. The *Mule* weighs around 700. And no pressure regulator adjustments are necessary—just normal hookups.

"By using our new system, time is saved by 200% in rigging the main rotor head," he said.

Word on Gun Log Books

BuOrd has recently received several letters and log books which indicate loss, separation, and improper handling of the log books for the 20-mm aircraft guns and feed mechanisms.

The primary purpose of these log books is to "pass the word" concerning historical data to a receiving activity when the gun or feed mechanism is transferred. If the log is not kept up to date and transferred with the gun or feeder in accordance with the instructions printed on page one of the logs, and NavOrdInst 8710.4, the receiving activity has no way of knowing the remaining useful life of the gun or feeder (rounds fired). Furthermore, there is no way of knowing whether the instructions of NavOrdInst 8710.15 (Parts Replacement Schedule), have been followed.

BuOrd uses data from the log books for engineering studies. For example, if 10 log books show one certain part failing consistently between 200-300 rounds when it should be good for 500 rounds, BuOrd takes action to build a better part, requiring less maintenance and more dependability.

The instructions for maintaining the log books are clearly covered by NavOrdInst 8710.4 with supplements 1 and 2. A letter of transmittal is not necessary when the pages of the logs are mailed to BuOrd. However, an entry should be made showing whether the gun or feeder was surveyed or lost. When a gun or feeder is turned in to a local supply activity for screening for overhaul or survey as Class 265, the log should accompany it.

WAITING *for USS Tarawa to come in after world cruise with CAG-3 are Calvin W. Burton, Jr., his mother and other Fairjax families. Calvin Senior is an SD1 attached to VF-32.*

LETTERS

SIRS:

It is requested that the following be included in the November issue of NANEWS: Attention of all aviators and aviation pilots is invited to OPNAV Notice 3760 of 27 August 1954 which requires all pilots credited with flight time during the period 1 July 1949 through 30 June 1952 to file a summary report covering their flying activity during the period. Personnel reporting should use the form provided on the reverse side of the notice. The notice has been given wide distribution.

The information will be used, in conjunction with data regularly returned on the semi-annual "Individual Flying Time Report", by OPNAV to set up a central record of each pilot's experience and qualifications. It will be made available for use by Flight Status selection boards and the Aviation Personnel Division of OPNAV. The data will also be used by the Aviation Safety Activity in connection with accident studies now in progress.

All pilots who logged time during the period are requested to return the completed report promptly.

E. L. FOSTER, CDR.

SIRS:

With regard to the article entitled "Overseas Deployment Boost Flight Hours," page 33 in NANEWS August 1954, a closer inspection of the records will show that VP-40, briefly mentioned in the article, has surpassed the "record" total flight hours for one month's operation which VP-49 accumulated in its all-out efforts in May.

During February 1954, VP-40 flew 1073 hours in carrying out its required Far East operational commitments. The squadron, using 100% operationally "up" aircraft, made all flights under all-weather conditions with no flights cancelled.

During a five-month overseas period, VP-40 flew over 5,200 hours and more than 1,000 hours a month three months of the five. In no instance was this squadron attempting to set or break any flight hour records.

Incidentally, VP-40 also won the Com-AirPac Safety Award for the entire period.

R. R. HOLMAN, LT.

SIRS:

This is just a note to tell you how much personal pleasure I got out of the article "Sense" in the September issue of Naval Aviation News. Whoever did this job for you wrote an excellent article. It recalled some of my most pleasant memories during WW II, starting with the day I naively walked into that den of Magnificent Madmen up in the Training Literature Section.

As your article points out, the wonderful writers involved back during the birth of those Sense manuals were hardly what you would call regulation Navy officers. As a matter of fact, some of the more conventional guys who accidentally were thrown in contact with those Magnificent Madmen finally left for their next assignments with a sort of wild-eyed look on their faces.

But for all their fun-loving antics, the gifted men who created the Sense manuals turned in one of the finest journalism jobs in the history of government service. And, of course, Bob Osborn, the creator of Dilbert, has always been in a world all his own so far as I am concerned.

Congratulations on a fine job.

MAX KARANT

Aircraft Owners and
Pilots Association

SIRS:

The National Air Museum is endeavoring to complete its ready reference library of aviation periodicals. This library is part of the national aeronautical collection and is used by the Museum staff and the aviation fraternity at large for research dealing with aviation history.

Scattered issues of aviation magazines are needed to complete partial volumes already on hand. If anyone reading this would like to donate or exchange magazines, we have our "want list" and a list of duplicate issues available for exchange that can be supplied upon request. Simply write us c/o Smithsonian Institution, Washington 25, D. C.

ROBERT C. STROBELL
ASSOCIATE CURATOR

IFR-IQ?

According to the All Weather Flight School, answer is False. Ref: Radio Facility Charts and In-Flight Data, U.S., Procedures for ADIZ flights.

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Naval Aviation News is available on subscription for $2 a year through Superintendent of Documents, Government Printing Office, Washington 25, D. C.

● THE COVER

Men work on F9F *Panther* jets on flight deck of the *Antietam*.

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SQUADRON INSIGNIA

FEATURED this month are approved insignia of two active duty and two Reserve squadrons. The Black Angel of VF-122 symbolizes the great power and superhuman strength protecting man's God-endowed freedom. Mission of VJ-62 is shown by a winged eye on a film strip; and the civic pride of Reserve AAU-882 pilots is apparent in the exhibit of a plowed field, sunflower, tornado and thunderstorm associated with their Kansas home. A ferocious bear in the design of Reserve VF-878 depicts the symbol of its California home. A swept wing fighter aircraft in flight symbolizes the squadron's speed.

VF-122

VJ-62

AAU-882

VF-878

NAVAL AVIATION NEWS

THE PILOT of this Swedish Venom night fighter doesn't need a homing pigeon to guide him through the snow flurry. The eyes of his radar found the target for him. Let NAVAL AVIATION NEWS be your guide to what is new in Naval Aviation. Subscribe now. You can get the NEWS for a year by sending two dollars to this address:

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