NAVAL AVIATION NEWS

Patuxent Tests
Boats That Fly
NavAer 00-75R-3

January 1950

SNOOTS IN AIR

Three strange looking pictures are presented in this month's recognition quiz; Two are Navy planes, the third a new Air Force bomber. *Answers are on last page.*

FLIGHT TEST

OF COURSE, the above duck's eye view of a P4M cockpit is posed, but it could easily be the real McCoy. Both Cdr. Turner F. Caldwell and Capt. W. V. Davis, Ass't. Director and Director, respectively, of the Flight Test Division of the Naval Air Test Center, Naval Air Station, Patuxent River, Md., make it a practice to try out every new Navy plane.

They've flown not only the biggest but the fastest, too. Both broke the speed of sound in the D-558-II *Skyrocket* in runs at Muroc dry lake, Calif.

Their bailiwick at Patuxent hums with activity as test pilots and engineers strive to discover flying qualities and uncover bugs in the Navy's hottest jobs. Challenges are accepted with vigor. Flight Test's business is skepticism and curiosity about all new planes.

ONE INCH INSTRUMENTS FOR CROWDED SPACES SHOWN BY R. W. ANTHONY

J. A. FERRI EXAMINES SPECIAL INSTRUMENTATION PHOTO PANEL IN F2H

LIKE GRIP MACHINE, FORCE APPLIED BY E. FRANK ON WHEEL REGISTERS

Bewildering Arrays of Instruments Check Human Judgment Against Accurate Data

"OUR ENGINEERS should have doctor's degrees; pilots, master's degrees, and maintenance personnel, bachelor's degrees."

An ever increasing clutter of complex problems in testing today's new aircraft evoked that statement from Cdr. Emerson Fawkes, Chief Project Engineer at Flight Test.

He also said that pilots have to be supermen. It's obvious that aeronautical engineers can't improve on nature's handiwork, so they tailor their wares to fit the pilots.

As the first Navy outfit to lay its hands on new aircraft, Flight Test has to be mighty cagey in its approach. Every move made with a plane is planned in minute detail. Test pilots have behind them the Test Pilot's School of six months (NANEWS, Sept. 1948). A special installation of recording instruments is built into every plane. Engineers calculate to a nicety what's to be expected.

FT's well-known job is testing planes. They also perform a less obvious but just as important a task—*experimental flying*—new carrier methods and such.

Flight Test, as a division of NATC, operates under the Bureau of Aeronautics. Navy regs, 1948, assigns the task of conducting acceptance examinations and trials on new aircraft to the Board of Inspection and Survey. BIS has no cognizance over purely experimental aircraft not proposed for general issue to the service, however. The D-558-II is an example of this.

When the BIS requires trials, Flight Test acts as its agent. FT also performs tests directly for its boss, BUAER.

It must be remembered that the work of FT deals primarily with the plane. The way to fight the plane comes under Tactical Test, its firepower under Armament Test, its radio and radar gear under Electronics Test and keeping it flying under Service Test. These divisions will be the subjects of future articles in Naval Aviation News.

THREE PHASES IN FIRST TESTS

Preliminary testing is divided into three phases. Phase I is a brief demonstration by the contractor who built the plane. It is usually done at the contractor's plant and is brief—just proof that it is safe to fly. A team of several pilots from FT sometimes gives the plane a preliminary evaluation. Six to eight flights for large aircraft and 18-20 for small ones are made. They check stability and control and make sure there are no major deficiencies.

Phase II, also by the contractor, is an elaboration of Phase I. It is more detailed. There are higher speeds, greater load factors, and all flights are completely instrumented. At the completion of Phase II a decision is usually made on production and at that time one or two experimental models are delivered to Flight Test for their thorough going-over.

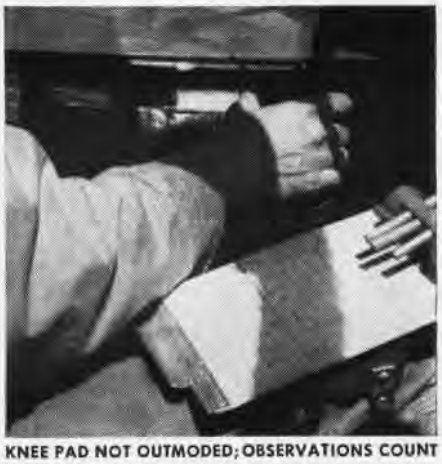
Sometimes there is a Phase III where planes are taken past their limits. That's where test pilots really earn their pay. This phase usually deals with production planes.

The question might be asked, "Why does the Navy go to all this trouble to test planes? Can't the manufacturer do the job?" The answer is that somebody has to check on the contractor to see that what he is delivering fulfills the specifications and guarantees in the contract. The Board of Inspection and Survey protects the interests of every naval aviator and thus prolongs his life. Reports by the contractor are subject to some natural doubt because of natural differences in interpretation of specifications and requirements.

Flight Test is often in the position of receiving new

TEST PILOT LT. CHUCK SMITH ENTERS AN F3D

SMOOTH FLYING IS REQUISITE FOR TEST PILOT



KNEE PAD NOT OUTMODED; OBSERVATIONS COUNT

equipment for test just a few weeks before the fleet. Competition has produced this speedup and FT just can't squeeze a detailed job into a short time. Thus the fleet is exposed to problems which should have been found before planes were delivered to operating units.

No shortcuts in testing are available. With the shift to jet power, increase in weight and tremendous fuel consumption, the need for accurate data increases. FTs effectiveness depends on getting as much of that accurate information as possible, and that leads us to instrumentation, the key activity in the one and one half hangars FT occupies.

METERS, GAGES, FOR EVERY TINY OPERATION

Every pilot and mech is acquainted with the standard cockpit instrument panel. If a test pilot had to copy every indication on that panel every second he would indeed be Superman. Since he can't do the job science has taken over.

The most common approach for keeping an accurate record of airplane performance is to construct a panel with the required instruments illuminated and a movie camera recording, at preset intervals, all the information needed. A clock in the picture coordinates the performance with time.

Oscillographs also play an important part. They can indicate in graphic form from one to 20 or more operations on one sheet of paper—operations too fast for movies. The graph shown on page five, for instance, could show many items of an arrested landing: hook tension, landing gear stress, hook vertical bending, hook lateral position, and pressure at oleo orifice.

Examination of these records keeps a large staff of engineers busy. Microfilm projectors located in dark passages always have somebody looking over instrument readings from the photo panels, while graphs are studied at desks.

John Boston heads instrumentation. His men are called upon to make custom installations for every plane. In the big planes instruments are spread throughout the fuselage. In the F2H, however, the photo panel had to be squeezed into the nose in place of the guns. Every plane offers a new challenge. It is man versus machine. Items like keeping a camera working in subzero temperatures come cropping up at all times.

Some planes come from the contractor completely instrumented, some not. Whether or not FT does make its own installation it must be sure that the instruments are on the button. The instrument calibration shop, under E. R. Knitter, keeps them that way. He has one of the finest laboratories that can be found today. Whenever any new instrument setup is required, E. Frank's Engineering and Development shop steps in and does a little inventing.

Here is a typical lineup of tasks to be done by an instrument installation. Under stability and control are recorded: pounds force applied on each control, angle of yaw, angle of attack, control positions, "G" forces, maximum and minimum speed, and strain gages at vital points for arrested landings and catapult shots. Engine performance comes in a separate trial. Then the following are recorded: fuel consumption, temperatures (every cylinder, oil inlet & outlet, carburetor, etc.), pressures, RPM and torque forces. Most structural testing is done at NAMC PHILADELPHIA.

One miraculous instrument is the Brown Recorder. This gadget can be set up to record up to 144 separate temperatures on an engine. It assures that any hotspots will be detected. It's the baby of J. A. Ferri and his crew.

The instrumentation division also has the job of pooling and maintaining all the V-G recorders in the Navy.

FLIGHT TEST HAS PERSONNEL PROBLEMS TOO

It hasn't been easy to gather a staff of 70 engineers, mechanics and draftsmen in an out-of-the-way place like Patuxent. The civilian staff, a youthful one, is gaining experience and permanency.

Test pilots flow in steadily from TP school. They are the sharpest aviators from the fleet. Perhaps FT's hardest job is maintenance, which has to depend mainly on enlisted personnel. Some 150 men must maintain 50 airplanes, mess cook, be storeroom keepers, sweep up and drive trucks.

XAJ-1 CARRIES TWO RECIPROCATING ENGINES AND ONE FUSELAGE JET

P4M-1 LOOKS LIKE TWIN-ENGINED PLANE BUT HAS TWO JETS ALSO

ASS'T. DIRECTOR CDR. TURNER CALDWELL FLEW BOTH D-558-I AND II

DIRECTOR CAPT. W. V. DAVIS FLEW SEC. JOHNSON TO FDR IN XHJP-1

They Test The Whole Works--Helicopters, Patrol Planes, Aircraft Carrier Types

SECTIONS of Flight Test fall naturally into categories according to employment of the planes they test. Of course there is a Carrier Section, and closely allied with it is Carrier Suitability. There are Patrol, Rotary Wing and Power Plant sections.

The Carrier Section, under Lt. Col. W. E. Clasen, conducts all stability and control tests for such carrier planes as the F6U, F9F, F2H, AJ and F3D. This section also furnishes the pilots for Carrier Suitability, which is under the direction of LCdr. J. G. Hedrick.

An example of a plane being put through its paces is the F2H. After careful preparation by the instrument people, LCdr. Runyon would give it the once over for mechanical characteristics of the control system, longitudinal stability and control, lateral ditto, stalling characteristics, and the operation of the booster control system.

Lt. R. H. Beatte gave the plane its carrier suitability run-through. The plane was catapulted and arrested (There is a rotatable carrier deck on the field). In arrested landings cameras follow through with clocks and pendulums in the same picture, making possible determination of rate of sink, speed of touchdown, rate of arrest and many other items.

Cdr. H. E. McNeely's Patrol section has as its babies the four-engined P4M (two reciprocating, two jet), the JR2F amphibian and the P5M with a radically different hull.

A section with somewhat different problems is Rotary Wing. LCdr. H. S. Brown and his two other pilots and four engineers take the helicopters through the paces required of fixed wing craft but also add a few wrinkles of their own. Hover performance, vertical climbs and performance with various weights and air temperatures are checked. One important item for safe flying is setting up a curve of altitude against various forward velocities to indicate the safe regions for making autorotation landings after engine failure. The HRP-1 & 2, HJS, and HJP are being tested currently.

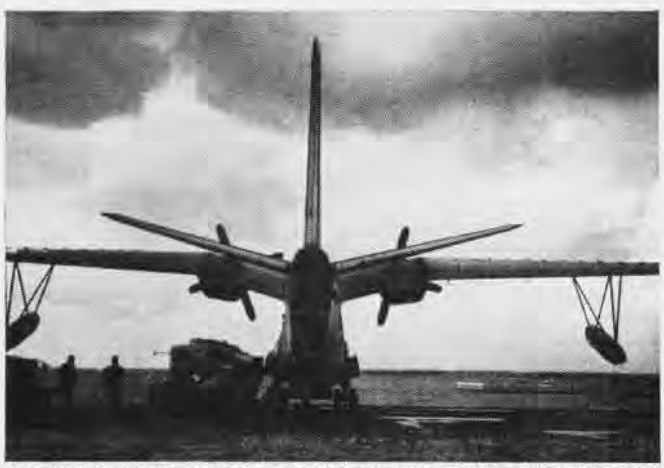
Maintenance is under the Operations Officer, LCdr. O. I. Chenoweth. Factory field representatives accompany each test article (BUAER'S pet name for a new plane being tested), and help coordinate upkeep. A program of training enlisted men in the new planes is underway at all times. For example, two mechs are always at the Martin plant in Baltimore for two-weeks periods. As with test pilots, top-notch enlisted personnel are at FT. Maintenance often helps develop new parts for the planes being tested.

William Robinson is head of the Power Plant Section, which evaluates the airplanes' engines.

SKIPPER AND EXEC HAD VARIED TEST CAREERS

When Secretary of Defense Louis Johnson went aboard the FDR recently in the XHJP-1 (which in production will be the HUP-1), his pilot was Capt. Davis. The director of Flight Test will have held his job three years in May. He was a test pilot at Anacostia before the war, has had previous duty at Patuxent in the Armament division.

Cdr. T. F. Caldwell, assistant director, held down the fighter desk in the Bureau in 1947 and in that capacity went to Muroc and flew the D-558-1 to a new record of 650



NARROW FUSELAGE OF XP5M-1 SHOWS IN THIS END-ON SHOT ON RAMP

RADICAL HULL DESIGN ON XP5M-1 PERMITS OPERATION IN ROUGH WATER

mph. He came to Patuxent nine months ago from the job as Commander of Carrier Air Group Four.

Suggestions on new planes from fleet units using them are always welcome. As mentioned previously, the squadrons fly their planes concurrently with Flight Test and can find many bugs. They lack accurate measuring devices but their information is immediately evaluated and a fix made.

In the realm of experimental flying the development of new techniques in carrier landings for jet aircraft has received much attention. Past practice had the pilot nose down at the cut and then yank back on the stick to get the tail down as he hit the deck. The heavier jets, however, don't react the right way to that treatment. They have an unhappy tendency to bump their tails that aren't supposed to touch the deck at all. Cdr. E. P. Aurand's VF-51 with FJ-1 *Furies* developed a modified stick-fixed approach, while Flight Test did the same thing for the F9F. With that method the plane is practically flown onto the deck with little or no stick correction.

With the P5M and its different hull, new techniques had to be developed in taking off, landing, and water handling.

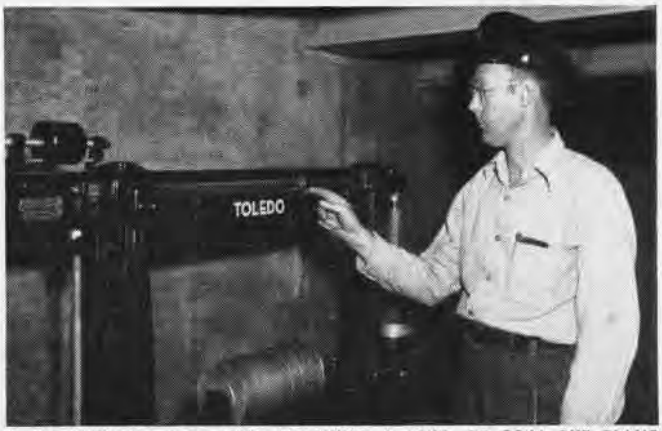
BATTLE OF THE MACH NUMBER

In high altitude flight the test pilots have to be exceptionally careful between narrow barriers. Engine idle speed closely approaches rated military power, for instance. The gap between stalling speed and buffet speed narrows to nothing, and descent is a slow and painful process unless dive brakes are available.

Control systems offer problems, too. Pressurized cabins require close packing around control wires, resulting in friction. Thus the need for boost. Then with boost, "feel" is lost. Then artificial feel has to be added. Ad infinitum.

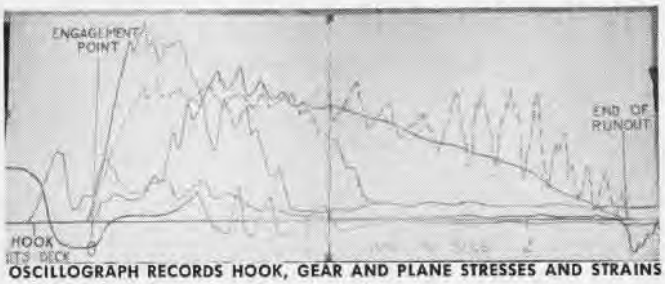
Our watchdogs at Patuxent labor on. Pilots fill their knee pads with information and the instrumentation men dream up their new installations. If you wondered why it takes so long to test a plane, you now have some hint. There are a number of operations to complete. They are at their minimum, a series of planned operations. Even after a plane is fully operational, testing continues to gain information in planning the planes of the future.

Today's "test article" in the hands of Flight Test will be tomorrow's "production article" in your hands.



M. W. SCHOOLS, AOC, ISN'T WEIGHING A LOAD OF COAL BUT PLANE

LCDR. KUNZ WAVES IN LCDR. CHENOWETH IN AD-3N; PIX BY STINGALL



OSCILLOGRAPH RECORDS HOOK, GEAR AND PLANE STRESSES AND STRAINS

XJR2F-1 DOESN'T NEED BEACHING CREW; HERE CDR. H. E. MCNEELY, HEAD OF PATROL SECTION, TAXIES UP RAMP; PLANE IS DESIGNED FOR RESCUE WORK

GRAMPAW PETTIBONE

How About the Tab?

A year ago I printed a story concerning a PV that was ditched about a minute after take-off when the pilot discovered that he had no elevator control. At this time he was heading out over Lake Washington at an altitude of about 50 feet and the yoke simply came loose in his hands. The plane started into a steep climb, and the pilot instinctively pushed the yoke forward. When this did no good, he throttled back and the plane went into a glide. As he applied power again the nose went up sharply. By adding and substracting power he was able to ditch the plane in a level attitude. All crew members got out safely.

When the plane was lifted from the bottom of the lake, it was discovered that a small nut had backed off the elevator control, rear, push-pull rod. Pieces of the broken cotter pin were found in the bilge after recovery of the plane. .

Shortly after this story appeared we had a letter from a reader asking why the pilot didn't continue his flight using the elevator trim tab. Since then the question has come up again several times. One PV pilot states that he was a member of a squadron that used to simulate such an emergency, and that pilots became quite adept at using the elevator tab in place of the stick to make simulated landings.

In this particular accident a radioman was riding in the copilot's seat, and the pilot certainly had both hands occupied. No change was made in the position of the elevator trim tab during the emergency.

However, it is interesting to speculate on what would have happened had either the pilot or the man in the copilot's seat rolled in down tab as throttle was added. It is probable that a controlled climb could have been established. Reaching a safe altitude with plenty of gasoline the pilot could have practiced flying the plane using the elevator trim tab as a substitute for the regular elevator control. Eventually he would have had to decide whether to attempt a landing or to bail out.

What do the PV pilots think about this? I'd like to hear some more opinions as to whether or not this plane could have been landed successfully by use of the plane's elevator trim tab.

Controls Jammed!

Two recent examples point up the necessity for making sure that there is no loose gear adrift in the cockpit. In the first instance an unfastened safety belt jammed the rudder controls and caused a plane to veer off the runway towards a group of spectators during a station airshow. The pilot almost had flying speed at this moment and managed to pull the plane into the air just short of the crowd. However, the landing gear injured two observers.

In the second case the pilot of an SNJ made his second pass in a period of FCLP and received a cut. Applying power to go around again, he started the usual gentle turn to the right When he attempted to level his wings he found that the stick would not come back to the left. It stopped at the neutral position. The pilot was unable to recover from the right bank and consequently chopped throttle and kicked hard left rudder. The plane began to level just as it hit a small embankment. It bounced back in the air, landed again, and rolled along in pretty good shape until it hit a large drainage ditch.

Subsequent investigation revealed that a radio receiver in the rear cockpit of the SNJ had been improperly secured. The lock-down keys came loose, allowing the set to fall down and wedge itself between the stick and the foot board on the left side.

Grampaw Pettibone says:

It sure pays to have things properly stowed. I guess we've logged a dozen accidents in the last couple of years where some object jammed a control. These fellows were lucky to get out without personal injuries. No doubt some of our unexplained fatal accidents have been the result of just such unexplained causes.

Right in the Teeth

A student in basic training was on his first solo gunnery flight. He made a very flat "high side" run and kept the center of his sight on the tow line. He expected the sleeve to pass by at the last minute and did not have it within his vision at any time during the run. The SNJ hit the tow line, shattering the forward portion of the canopy. The towline apparently struck the pilot in the face causing severe lacerations and the loss of a front tooth.

After impact the student says—"I think I pulled out perpendicular to the tow. I remember thinking that I had pulled too many "g's" and looked at the accelerometer. At the same time I put my glove hand up to my face. It was numb and swollen. My front teeth were missing and blood was coming from my mouth. My helmet was gone.

"I circled until my instructor pulled alongside and motioned with his thumb, 'Is everything all right?' I gave him the all right signal and we headed back towards Saufley. When we got as far as Bronson I was pretty dazed and felt I couldn't go any further. I made my landing at Bronson".

Grampaw Pettibone says:

Well, the moral of this story should be pretty obvious. This lad is mighty lucky that he didn't lose more than his helmet and a tooth. That fast moving steel towline could very easily have decapitated him.

Local Gunnery Flight Instructions call for the pilots to break-off a run immediately upon losing sight of the sleeve.

Slick Trick Dept.

If you had a student pilot knock one wheel and landing strut clear off a PB4Y-2 do you think you could bring it in for a landing without damaging the props or engines on the wheelless side? The instructors at Corpus Christi say it can be done and have pictures to prove it.

Here's the way it's done:

"On two recent occasions pilots of this command have demonstrated excellent technique in landing *Privateers* that had one main side mount completely disabled. Exactly the same technique was used in both cases and it has proved to result in a minimum of material damage and maximum personnel safety. When first confronted with the necessity of landing a *Privateer* disabled as

described above, several experienced PB4Y-2 pilots were called together while the aircraft circled the field, and were called upon to consider the problem involved and to derive a system of landing.

"None of the pilots concerned had ever been confronted with such a situation, but by pooling their opinions on the matter they arrived at a system which was recommended to the pilot of the disabled aircraft by radio. The pilot involved agreed on all points of the system recommended and carried it out successfully. The system in brief is as follows:

(a) Drop bomb bay tanks if aircraft is carrying them.

(b) Send crew to ditching stations.

(c) Select runway most into the wind and have ground personnel clear area about the runway of all movable obstructions.

(d) Pilot makes normal approach to runway except that approximately five knots additional speed is carried in final. On this pass, pilot experiments with actual technique involved in making the approach, determines drift and takes a wave-off.

(e) If pilot is satisfied and all ground preparations are complete, pilot is cleared for a landing.

(f) Pilot effects same approach to landing and just prior to touching down applies wing down correction toward good side mount and touches down on that mount with nose held high.

(g) Both engines on the disabled side are feathered by copilot as soon as aircraft touches down.

(h) Pilot holds aircraft on good mount *only*, by aileron and elevator pressure as long as possible and then eases nosewheel to deck.

(i) Employ full throw of aileron to hold up disabled side, and as wing commences to drop on that side apply brake on good mount intermittently. Copilot pulls crash-bar.

(j) Continued intermittent braking action will now have triple effect of preventing swerve to disabled side, of throwing wing on disabled side into the air and of slowing aircraft.

(k) When wing on disabled side can no longer be held clear of the runway by aileron and brakes, lock brake on good mount to prevent violent groundloop to disabled side and to stop forward motion.

(l) Abandon aircraft through emergency exits.

By employing this method, both pilots so involved, have been able to keep the aircraft rolling directly down the runway for distance in excess of 3000 feet before touching the wing down, and on neither occasion was quick stoppage of an engine experienced. On the first occasion no propeller damage was experienced, and on the latter occasion one blade on each of the engines on the disabled side had approximately ¼-inch filed off the propeller tip. On both occasions the structural damage to the aircraft was at a minimum that could be expected under these circumstances."

Too Close Abeam

The pilot of the F4U-4 pictured here had been scheduled for FCLP. This practice was cancelled because of considerable water on the mat and the pilot was instructed to make a normal approach to a landing.

On his downwind leg he was too close to the duty runway and started a steep nose down turn from an altitude of about 400 feet, carrying a lot of power. As he passed the 90° position he reduced power slightly. Turning into the groove, he noticed that his rate of descent was too great.

He added throttle to slow down his descent and as his left wing began to settle he added more power, right rudder and right aileron in an effort to get the wing up. When this failed he added still more power and dropped the nose in an attempt to get straight and level. The plane hit 160 feet short of the runway on its left wing tip and cartwheeled.

It was a broken twisted mass by the time it came to a stop on the duty runway. The pilot unfastened his shoulder harness and safety belt and was standing clear of the wreckage when the crash crew arrived.

Grampaw Pettibone says:

This lad must have been thinking pure thoughts all week in addition to having his shoulder harness good and tight . . . because it certainly is amazing that he could walk away from this crumpled *Corsair*.

The mistakes that he made killed another pilot at the same field just a few weeks before. All student pilots have been cautioned concerning the hazards of starting an approach too close abeam, and have been instructed, when not engaged in FCLP, to maintain a wide margin above stalling speed.

Remember that stalling speed increases tremendously in a steep turn. Once you find that you are having difficulty getting a wing up, get the nose down quickly then add throttle. Adding power in a nose high, steep, left turn is a sure recipe for trouble.

Before starting Field Carrier Landing Practice, read Flight Safety Bulletin 1-47 which describes some of the most frequent causes of accidents in this phase of training.

Dear Grampaw Pettibone:

I thought you might be interested in an experience that I had on a recent cross country trip. After landing, the tower directed me to the area marked for transient aircraft. I was then pleasantly surprised to see a jeep arrive to take me to operations. There the driver directed me to the desk where I closed out my flight plan, sent an R.O.N. and signed a gas chit.

The operations duty officer handed me a mimeographed sheet which told of the facilities on the base, gave information relative to quarters, transportation to town, etc. As I left the building for the ride up to the B.O.Q. I noticed that my plane was already being serviced.

The next morning when I got ready to depart a lineman handed me a small sheet of paper with several questions which could be answered by YES or NO answers and asked me to put check marks in the appropriate boxes. The questions were relative to the service afforded me while at this base. Was I provided with prompt transportation, was the plane serviced efficiently, were the facilities at the B.O.Q. satisfactory, etc.? Did I have any suggestions for rendering improved service to visiting aircraft?

About this time I ran my hand up towards my collar to make sure that those (jg) bars were still there, because I was beginning to feel like a V.I.P.

I left that station with the feeling that it certainly must have a very sharp commanding officer.

Sincerely,

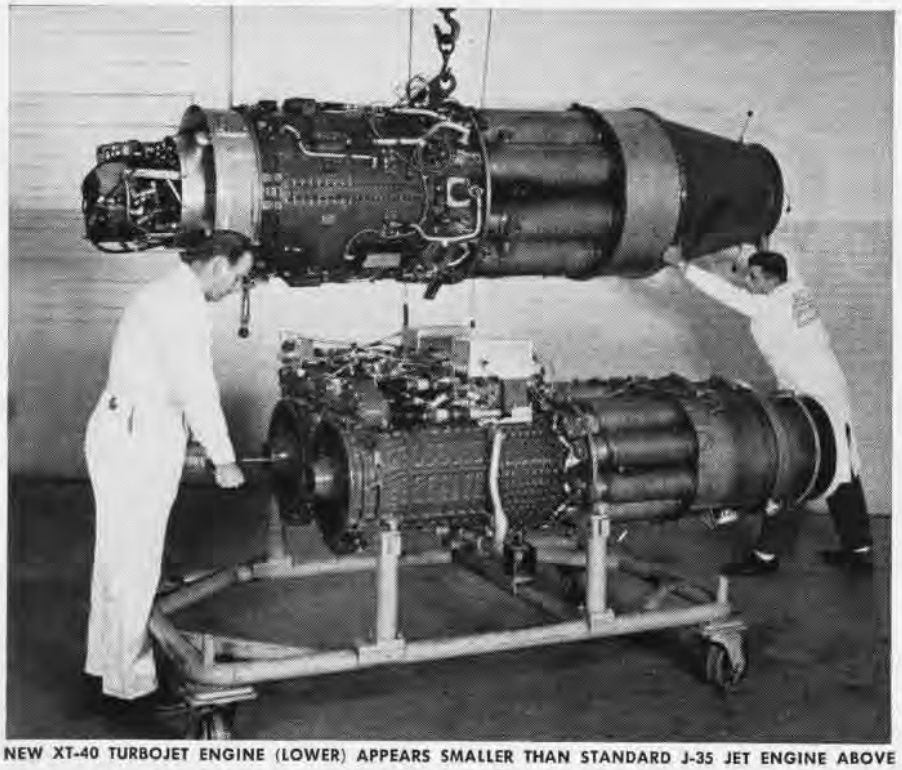
. . . . . Lt. (jg), USN.

Grampaw Pettibone says:

Since the publication of ACL 88-48 concerning hospitality and services to be accorded visiting aircraft, I think there has been a noticeable improvement in courtesy and service at most air stations.

Some years ago I used to accompany a Vice Admiral on occasional trips and I never ceased to marvel at the things people would do for us and the speed with which all the services were accomplished.

It sounds to me like you've discovered a station which operates on the policy that every visiting pilot is entitled to the same quick, courteous, service afforded a high-ranking official. After all, when you stop to think about it, a station is going to have to provide the services a pilot needs sooner or later if he is ever going to get on to his next stop. It doesn't cost any more to do it with the accent on hospitality. I hope more of our stations will adopt this attitude toward all transient aviators.



NEW XT-40 TURBOJET ENGINE (LOWER) APPEARS SMALLER THAN STANDARD J-35 JET ENGINE ABOVE

NAVY GETS TURBOPROP ENGINE

THE NAVY and Allison division of General Motors took the wraps off the new XT-40 turboprop engine which will power the XP5Y-1 seaplane and other large Navy planes of the future.

The engine is simply two small turbojet units with drive shafts extending forward to a common gear box and driving counter-rotating propellers. As can be seen from the accompanying photo, the new engine is smaller than the standard J-35 jet used in the FJ-1. Since its energy goes mainly into turning propellers, its power is reckoned at 5500 horsepower. Its exhaust thrust, although present, produces only 10 percent of its total power.

The XT-40 produces two horsepower per pound of weight and is the most powerful propeller-type engine ever cleared for flight. Through its gearing, the engine can utilize both jet units for take-off, then by clutches one can be cut off and cruising done on one unit for fuel economy. Conventional reciprocating engines of World War II weighed about a pound per horsepower, double that of the XT-40.

By operating on jet fuel and outperforming engines requiring high octane leaded gasoline, the XT-40 simplifies the supply problem for aircraft. Using extension shafting to drive propellers is not a new idea, Allison used it during the war in the Bell P-39 and P-63 fighter planes which were powered by reciprocating engines located in the rear of the fuselage.

Use of this shafting permits location of the engines at the point most favorable for airplane design and still allows location of propellers at the point where they can contribute most to airplane performance.

The Consolidated Vultee XP5Y-1 has been completed at San Diego and installation of the XT-40 engines soon will enable it to make its first flights.

First Night Takeoff at Kona

Cars Furnish Lights & Chase Cattle

VU-7-A, PACIFIC—On a recent SAR mission to Kona, Hawaii, to evacuate a former Marine lieutenant seriously injured in an automobile accident, one of VU-7's *Catalinas* made the first night take-off in the history of the then two-month-old airfield.

A night take-off, of course, is only a routine matter under ordinary conditions. In this case, however, the PBY was faced with a night take-off at a strange field with a short runway and no runway lights.

The problem was solved by stationing an automobile at the up-wind end of the runway to provide lights for lining up the plane. As a final precaution, another car was driven up the runway immediately before take-off to clear off the cattle. And a moment later all hands gave a sigh of relief as the first night take-off from Kona became "just another item" in the life of a VU-7 man.

Floberg New Navy Air Head

Gunnery Officer Succeeds Kimball

A former gunnery officer of a destroyer escort in the Philippines, Iwo Jima and Okinawa campaigns today was the new Assistant Secretary of Navy for Air. He is John F. Floberg, 34, a Chicago attorney.

He assumes a position vacant since Dan Kimball was elevated to Under Secretary of the Navy.

Floberg is a Harvard law school graduate and practiced law in Chicago. Volunteering in the Navy a month before Pearl Harbor, he went on duty as an ensign in the Bureau of Ships in January, 1942. A few months later he became executive officer of the SC-770, a 110-foot sub chaser. He took command of this in March, 1943 and took it in the last stages of the North African operation and through the Sicilian and Salerno operations.

Floberg then moved to the Pacific as gunnery officer on the *Goss*, DE-444, a

JOHN FLOBERG IS NEW NAVAL AIR SECRETARY

part of the escort carrier task force which fought in later campaigns of the war in that theater. He transferred to *Bivin*, DE-565, as executive and took command of her in October 1945, when he became lieutenant commander.

Don't *look now—but VF-54-A from NAS Los Alamitos claims that the odd character, shown astride the canopy of CO LCdr. Colin Oveland's F6F Hellcat, is the gremlin mascot who helped him chalk up a rousing cruise*

Pilots' Skill Saves F4U's

MCAS CHERRY POINT—In these days of dollar-conscious commanding officers, two Marine pilots came in for praise for bringing down their *Corsair* fighters in emergencies without wrecking them. F4U-4's cost about $100,000 apiece.

And NAVAL AVIATION NEWS gets credit for an assist. Prior to the two emergency landings, an article in the NEWS, describing the technique of bouncing the gear down, as done by a TBM pilot, was read and discussed by squadron pilots.

Both pilots were from VMF-212. On 17 October, Capt. "Pete" Tonnema, TAD from headquarters squadron, MAG-14, experienced an emergency due to malfunctioning of a landing gear while flying off the CVE *Palau* south of Guantanamo Bay, Cuba. Soon after take-off his hydraulic pressure dropped to zero. Tonnema was instructed to land at NAS GUANTANAMO.

A methodical, well-planned sequence of events followed the instructions to land. The CO_2 bottle should have done the trick, but only one wheel dropped into the locked position because of CO_2 leakage. Aerobatics executed to give negative and positive "G" on the wheel proved of little help. The pilot resorted to the only alternative, other than landing on one wheel, and that was to bounce down on the runway on the locked landing gear, while maintaining a flying speed of 90 knots.

Capt. Tonnema made four passes on the runway, bouncing one time on his locked-down wheel on each pass. The faulty landing gear was down but would not turn into position and lock. His gas was running low and he still had no luck, so he gained altitude over the water and dropped his auxiliary tank prior to final landing.

On coming in to land, he touched his locked wheel on the deck first, and at stalling speed the other wheel turned and locked on contacting the runway. Capt. Tonnema's aircraft rolled to a safe stop. Prior to landing, he had turned off all switches to reduce the fire hazard. Later inspection revealed a ruptured hydraulic line had been the cause of the complete failure.

On 26 October, Maj. Charles E. Woodley experienced a similar situation, which proved a bit more perplexing, if not weird, because the hydraulic pressure was normal. The pilot tried every conceivable and prescribed emergency procedure for extending landing gear, only to receive the report that his left wheel was only between 20 and 30 degrees out of the wheel well.

He was instructed to land at Guantanamo also. Maj. Woodley decided to use the same technique employed by Capt. Tonnema. However, on each pass, he bounced the locked-down wheel on the runway three or four times. Each time the trailing wheel dropped down further into place until it finally locked. The final landing was made without incident.

Maj. Woodley's efforts were especially gratifying, because investigation revealed a burred knuckle fitting which caused the subject landing gear to freeze. To break the frozen position, out of necessity, he bounced the aircraft sufficiently hard to cause damage to the drag link braces and the retracting strut of the malfunctioning landing gear. Rough treatment, but the aircraft was saved.

Lt. Col. R. A. Merchant, Jr., CO of VMF-212, commended both pilots for a job "well done".

Marines Given Unit Awards

Philippines Heroism Wins Reward

Marine Aircraft Group 12 has been awarded the Presidential Unit Citation for service in the Philippine islands from 3 Dec 1944 to 9 March 1945.

By using its *Corsairs* as bombing planes to strike at enemy convoys, MAG-12 was credited with preventing the Japanese from reinforcing beleaguered garrisons on western Leyte.

In addition, the group was awarded the Navy Unit Commendation for heroism in support of elements of the Eighth Army in the Philippines for the period 10 March to 30 June 1945. Also awarded the NUC were MAG-32 for the period 16 March to 30 June 1945 and MAG-24 from 11 April to 30 June. Personnel who served with any of the four air groups during those dates are entitled to wear the ribbons of the citation or commendation.

'Maulers' Visit Canada

Cricket Games, Hornpipe Dance On

VA-44, ATLANTIC — International friendship between the Canadian, British and U.S. Navies was furthered when this squadron and its AM-1's visited Halifax, Nova Scotia, as this country's representatives at the city's 200th anniversary celebration.

Aboard the CVB *Midway* on the way up, with a shipload of Reserves on active duty cruises, the squadron spent considerable time on dive and glide bombing practice, rocket attacks, and finished off with a simulated attack on the task force.

Members of the squadron were impressed by the cordiality and hospitality of the Canadians, who had a full program of displays, exhibits and dances scheduled during their stay in Halifax. Included were softball and baseball games between the Canadian, British and American Navies, cricket matches which most of the Americans had never seen, and a hornpipe exhibition by British seamen from HMS *Glasgow*.

The Halifax cruise is the first of a series tentatively scheduled for VA-44 which will culminate in a six-months tour of duty in Europe.

Squadron members in the photo below are: Front row, Ens. J. C. Reilly, Lt. (jg) B. Carroll, Lt. N. P. Foss, LCdr. F. C. Auman, exec., LCdr. Robert N. Miller, CO., Lt. T. N. Meadows, Lt (jg) W. H. O'Neil, Lt. (jg) D. A. Barksdale. Rear, Lt. (jg) J. K. Mealy, Ens. C. W. Nagengast, Ens. C. C. Dalon, Ens. H. G. Hartmann, Ens. R. Z. Taylor, Ens. J. K. Johnson, Ens. W. T. Mitchell, Lt. (jg) E. W. Potter, Lt (jg) R. A. Bjorklund, Lt. (jg) I. N. Pell, Lt. (jg) J. W. Stose, Ens. J. E. Owens, Ens. D. B. Holcombe, Lt. (jg) A. Crawford.

MEMBERS OF VA-44 LINE UP FOR PHOTOS ON OCCASION OF VISIT TO HALIFAX 200TH BIRTHDAY

CAPT. BASLINI PRESENTS MEDALS TO NAVY MEN

Navy Movies Win 3 Honors

Science, Dentistry Films Get Medals

Three training movies produced for the Bureau of Aeronautics under supervision of the Naval Photographic Center, Anacostia, have received silver or bronze medals from the International Exhibit of Cinematographic Art, Venice, Italy.

Presentation of three medals, won in the 8th and 9th annual competitions against films from all over the world, was made recently by Capt. Franco Baslini, naval attache of the Italian Embassy. RAdm. A. M. Pride, chief of BUAER, received them in behalf of the Navy. In the accompanying picture, Adm. Pride is shown watching Capt. Baslini congratulating LCdr. Wilson R. Cronenwett of NPC for his part in production of the pictures.

A silver medal, equivalent to first place, went to a color picture "Naval Photography in Science", made by BUAER for the Bureau of Naval Personnel. Two films to help train dentists at the Navy's dentistry school at Bethesda were winners in the 1949 competition.

All photography for the Navy is under the direction of the Bureau of Aeronautics. Actual filming of the movies was by a commercial firm under contract with the Bureau and under NPC supervision.

Thousandth *landings aboard a carrier are a dime a dozen, but when 50 European publishers, editors and writers look on, it rates as news. Lt. (jg) Joseph J. Kozen of VA-114 made the 14,000 on the CV Valley Forge and sampled a huge cake by C. L. Ross, CS2, while RAdm. Dixwell Ketchum of ComFairAlameda watched him take first bite.*

★ ★ ★ ★ ★ ★

GCA BOX SCORE

October Instrument Approaches	11,136
Instrument Landings	323
Total Instrument Approaches	283,118
Total Instrument Landings	10,935

★ ★ ★

New 'Banana' Takes to Air

HRP-2 Has Metal-Covered Fuselage

RADM. PRIDE OF BUAER INSPECTS NEW HRP-2

A new version of the Piasecki *Flying Banana* with aluminum fuselage replacing the fabric on the HRP-1 has been announced by the Navy.

Slightly different in appearance from the first twin-rotor *Rescuer*, 20 of which are in service with the Navy, Marines and Coast Guard, the HRP-2 was completely redesigned for lower drag and vibration.

In the HRP-2, the pilots sit side by side, separated from the cabin behind. Round-the-clock visibility is afforded both men. Range is said to be 14% greater, cruising speed upped five miles and an improved rate of climb afforded in flight forward.

Another feature of the new plane is the larger center of gravity range provided—better than 30" range. This permits movement of passengers in flight and easier handling and stowage of cargo.

The *Flying Banana* has seen considerable service with the Marine Corps as a shock-troop transport.

SLIGHTLY CHANGED SHAPE FEATURES NEW PLANE

MERCER TRIES 'DILBERT DUNKER' AT ALAMEDA

Dilbert Dunker At Alameda

NAS Pilots to Practice Crash Escapes

Revival of war time training techniques is being made at NAS ALAMEDA, where pilots are once again checking out in "Dilbert Dunker." Once the pet aversion of thousands of neophyte airmen who gurgled through the supposed horrors of underwater escape during their flight training, Dilbert D needs no introduction to Navy pilots.

In the accompanying photograph, NAS lifeguard expert, Edward H. Mercer, AM, is testing Alameda's version of the dunker used for realistic practice in evacuating the water-choked cockpit of a trainer which has just "crashed" into the NAS swimming pool from a trolly brace suspended overhead.

Hundreds of sea-dunked carrier pilots, who dreaded the "Dilbert Dunker" check-out they were forced to undergo as cadets, are happily alive today to testify to the practical value of this training device.

VF-23 and VC-27, Hear This

The squadron histories of these two outfits are ready to run once we have action shots to illustrate the sketches. If members of VF-23 and VC-27 will send in some pictures, it will be greatly appreciated. The pictures will be returned in good condition after use. Send to Squadron Editor, Naval Aviation News, Op. 501D, Navy Department, Washington 25, D. C.

Capt. A. C. Olney, *veteran Navy pilot and BAR at Chance Vought Aircraft plant in Dallas, has flown every plane the company has built in 32 years. His latest was the F6U-1 Pirate. Vought presented him with a certificate in the "Blow and Go" fraternity of jet pilots for the flight in the Pirate.*

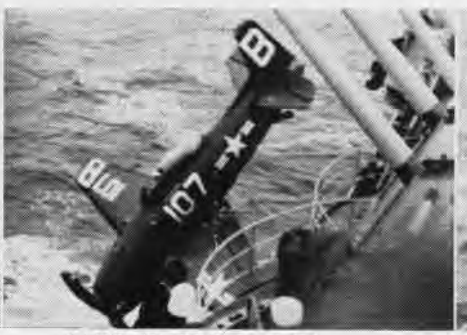
HOW TO DEPOSIT $150,000 IN THE DRINK

LANDED STARBOARD—TWO POINTS

. . . THREE POINTS

NEED FORE-AFT WIRES

PRETTY GOOD WRECK NOW



LET'S DEPOSIT IT IN . . .

. . . THE DISPOS-ALL

Crash Photos Teach Safety

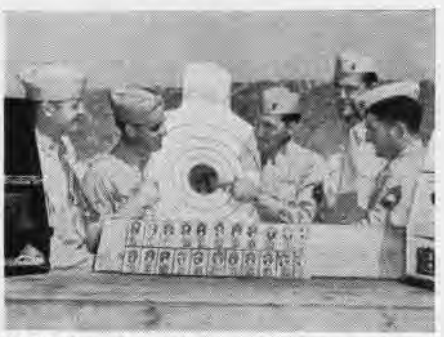
ComAirPac Uses Pictures for Training

COMAIRPAC, SAN DIEGO—Sequence pictures such as the one presented at the top of this page are compiled from time to time and distributed to carrier air units of the Air Force, Pacific Fleet, to illustrate common mistakes in carrier approaches and landings. The whole idea is to promote flight safety and reduce accident frequency among ComAirPac pilots.

In the sequence below, taken on board the *Valley Forge*, the pilot had made five successful landings and was coming aboard for his sixth landing. The approach was normal, but slightly to the right of centerline. As the pilot received the cut, he was coming from right to left in an attempt to hit the center of the deck.

Just as the airplane came over the ramp, the right wing dropped sharply, indicating the presence of "island wash," turbulence from aircraft on deck or overcorrection in landing. The F8F struck the deck on its right wing tip, then right wheel at the #4 wire, about 10 feet to the right of centerline.

The force of the impact collapsed the right landing strut and the aircraft swerved hard right, skidded across the deck and went over the starboard side at the after 20 mm. guns station without engaging a landing wire. The safety harness prevented the pilot from being injured in the water crash. He was picked up shortly thereafter by the plane guard destroyer cruising behind.



***It took** only 5 El Toro Marines to win 22 medals in competition with 200 marksmen at the South Pacific Regional Championship at Bakersfield, Calif. They are Capt. Blanchard, coach, MSgt. Wiley, MSgt. Hoyt, 1st Lt. Barclay, MSgt. Parks.*

Jet Engine Quits at Height

Marine Finds Self Powerless, Glides

MCAS EL TORO—What would you do if you were at 40,000 feet and the fire went out in your TO-1 jet engine?

Lt. Byron C. Allison of VMF-311 found himself in that unenviable position, the first such "accident" in 3,901 hours of jet flying by West Coast Marines. His engine quit when he was dog fighting with two other pilots seven miles up.

Knowing that starting his jet engine more than 20,000 feet up might be disastrous, he glided down at 225 mph to 18,000 where he restarted his engine. "Blowouts" occur at altitude for a number of reasons, among them that fuel feeds into the combustion chamber in larger droplets and ignites poorly.

Two Downed Pilots Rescued

Helicopters Pick Up Two in Atlantic

Pulling downed aviators out of the drink, long a popular pastime of the U.S. Navy, continues to make friends for rescue pilots especially the boys piloting the plane guard helicopters.

LCdr. C. E. Smith ditched his F4U in the water after an engine failure on take-off from the *Midway*. Four minutes later he had been picked up by the plane guard helicopter and deposited back on deck. Ens. A. F. Holmgren piloted the pinwheel.

In another rescue, fellow pilots of VF-65 maintained an aerial watch over a downed flier, Lt. (jg) Brooke Montgomery, son of RAdm. Alfred E. Montgomery of NOB BERMUDA. Montgomery's *Bearcat* developed engine trouble and burst into flames off Norfolk. He bailed out while his flight leader, Lt. (jg) George Bonner circled low and watched him climb into his life raft on the surface.

He sent the rest of the flight up high to maintain voice radio contact with Oceana. Elizabeth City Coast Guard station sent a rescue helicopter and three planes to rescue Montgomery. Meanwhile another flight of planes from Oceana went out to relieve the orbiting planes over Montgomery, which were about out of gas. An hour and a half after the mishap, the helicopter arrived and picked up the pilot with a hook. Montgomery's only injuries were foot bruises when he hit the stabilizer.

New Task for Aircrewmen

All crewmen must navigate and track the pilots, working daily navigation problems before take-off. Left to right, they are H. L. East, P. A. Sayers, M. S. Johnson, D. W. Johnston

DURING the war the pilot flew the plane and his aircrewman gunned for enemy aircraft or ground installations. Today's aircrewman has new responsibilities in the Fleet All Weather Training program—he has to help navigate and keep track of other problems of flying the plane.

Pilots and aircrewmen, as always, train as a team to fly in any type of weather or visibility. Accomplishing a mission in bad weather or at night where radar must be used is not a one-man job. This fact becomes strikingly apparent when low visibility conditions are encountered. It would become even more apparent under combat conditions.

In this age of electronics, the pilot requires someone of outstanding ability to operate the electronic equipment and assist in navigation. The aircrewmen for this program must be highly trained and must feel their importance.

An intensive program is being conducted by FAWTUPac to qualify combat aircrewmen for all weather flying and to improve the standards of those already assigned as aircrewman. The primary course includes a total 160 hours of class room instruction in survival, recognition, electronics, ordnance, communications and radar navigation.

The advanced course consists of 30 hours of classroom instruction in scope interpretation, radar navigation, countermeasures applications, bombing principles and meteorology. These are not elementary subjects and it takes a smart man to master them and know what he is doing.

Because teamwork is so important, flight training is integrated with pilot training and is continuous. The flights are designed to put a great deal of responsibility on the aircrewman so that the pilot will learn to rely on him.

The early flights consist of basic radar work such as search and homing, collision courses, coastal piloting and plane-to-plane interception. Thus, while the pilot is becoming familiarized with the airplane, he also is becoming used to the aircrewman and teamwork soon develops between them.

The subsequent flights consist of day and night navigation, visual, radar and special equipment bombing, countermeasures flights. On these flights, the aircrewman is required by the pilot to use a plotting board to assist in the navigation and also keep track of fuel consumption.

All flights are designed to increase pilot-aircrewman coordination, to develop their ability to use radar as a navigational aid and to use all electronic equipment in the plane. On bombing flights the aircrewman is required to detect the target and direct the approach, including a 45-degree turn, a push-over point and a release point. On countermeasures flights, the aircrewmen must operate all RADCM equipment in the plane, including handling *window,* and the pilot is required to know how to utilize this equipment to best advantage.

Actual or simulated low-visibility conditions are encountered on all flights, so the pilot and aircrewman together soon feel full confidence in themselves and each other to negotiate any route under any conditions, at any time.

Preflight ground check of the electronic gear in the F7F-4N *Tigercat* is one of the jobs for Lt. (jg) E. D. Jones, pilot of the fighter plane, and his aircrewman, D. W. Johnson, AL3.

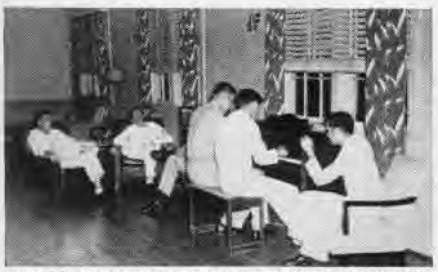
Glynco Opens Club for Men

Small Base Builds Its Own Quarters

NAS GLYNCO—This small air station claims one of the best enlisted men's clubs for a unit of its size, built mostly from the sweat and elbow grease of all hands from the Skipper down to the Jack of the Dust.

Because nearby Brunswick offers little in the way of recreation for the men, it was decided an EM club was a good way to meet the problem for the 150 personnel at the station. With a grant of $1500 from BUPERS as a starter, several months of work saw the floors waxed, furniture moved in and an official opening buffet dance with prizes by local merchants and music by NAS JACKSONVILLE band.

Besides dancing, the club offers ice cream, soft drinks, beer, hot or cold sandwiches and cigarets.



GLYNCO ENLISTED MEN HAMMER OUT A FEW BARS

Neptunes Fly Adak Nonstop

Whidbey Hop Time Has Variance

VP-4, WHIDBEY ISLAND — Non-stop flights from this base to Adak, Alaska, and return, taking 14 and 9 hours respectively, were flown by two P2V-2 planes from this squadron. It is believed that these were the first such flights of this type flown.

A great circle route, 2100 nautical miles long, was flown. On the way out to Adak, the 14 hour and 30 minute hop was made on instruments 75% of the way. Navigation was mainly dead reckoning across the Gulf of Alaska due to bad weather. Radar was used in the Aleutian chain with a GCA landing at Adak due to typical summer weather consisting of low fog.

On the outward flight, constant BMEP of 145 was maintained during the flight to obtain fuel consumption data. Power settings averaged 1600 rpm and 31" of manifold.

On the return flight, take-off from Adak was at 0500 in a moderate rain, a ceiling of 200 feet and ½ mile visibility. The flight was made at 9,000 feet altitude with 100 knots tail wind across the Aleutian chain. During the flight two fronts were crossed, with instrument flying conditions about 90% of the way.

Tortoise Totes Taxi Tip

Acts as Safety Aide at Corry Field

NAAS CORRY FIELD—When the instructors and students of Basic Training Unit Two check the flight boards in the hangar at NAAS CORRY FIELD, they see one of the Navy's newest walking advertisements. His name is Charlie.

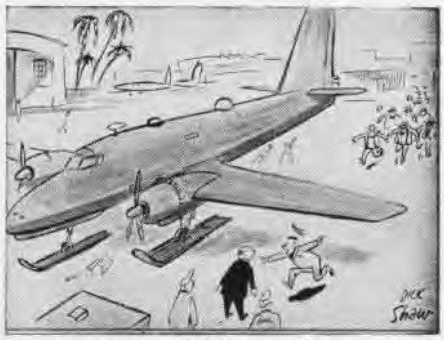
Who's Charlie? Why he's the small land tortoise who meanders around the

NAAS CORRY FIELD'S 'CHARLIE' SAYS IT AGAIN

hangar with "Taxi Slow" painted on his shell. The boys first intended to install a neon light system for night fliers, but Charlie just didn't have room enough inside for needed equipment.

Charlie has been labeled NAAS CORRY FIELD BTU-2 SAFETY TURTLE NUMBER 3023849 and is considered Title "B" equipment. However, the personnel of the storeroom will not assume responsibility, as Charlie might decide to go AWOL and head for the boondocks at any time.

Webster defines a tortoise as a person or animal that moves slowly. With Charlie giving such a good demonstration of proper taxi speed, it is expected that pilots will follow his action and thereby reduce taxi accidents.



The Southern California Chamber of Commerce wants to know what's the big idea?

Helicopter Refuels a Jeep

Corry Field Pinwheel Makes Debut

NAAS CORRY FIELD—A new use has been found for the search and rescue helicopter stationed here—transporting mechanics to boats disabled offshore and refueling jeeps.

The pinwheel took a motor mechanic to a YTB disabled in the Gulf 15 miles from Pensacola. The PBY escorting the helicopter found the ship and directed the helicopter to it. The mech was lowered to the fantail of the ship and the tug returned to base when repairs were completed.

Other missions of the unit included locating several fishing vessels long overdue from port. Recently the pinwheel was dispatched to locate a jeep that a picnic party had with it. The party had failed to return. After a half hour search of the beaches, the picnic party was spotted. Investigation revealed the jeep had run out of gas 20 miles from the nearest help. Lt. (jg) Hamilton landed and transferred gas from the helicopter to the jeep.

Plenty of hours *of work went into the reconverting of Navy R5D's from their stripped-down Berlin Airlift condition so they could serve the Navy again. VR-44 at Moffett Field inherited the job of cleaning up the planes. Here R. Farmer and F. A. Risner reinstall soundproofing while A. J. Guffey and J. R. Brandon put new decking down. In the background, the fuselage tank and forward cargo compartment bulkhead are shown, already installed by them.*

RAdm. A. M. Pride

AERONAUTICS

Bureau of Aeronautics designs, builds and buys airplanes. The men who direct it can draw on long experience in aviation when a new problem arises. This article tells something about these men and their work

WHEN A NEW jet airplane screams off the runway at a naval air station, it represents a lot of brainwork by a lot of men, plus the expenditure of enough money to build a housing project or two.

The four or five years of research come after someone in the Navy decides finally what kind of a jet the Navy needs and what kind of equipment will be put into it. The men who make up their minds about those important questions—the leaders of the Bureau of Aeronautics and the heads of the 27 divisions under them—have plenty of experience behind them, much of it under shellfire in the last war.

BUAER has grown since the 13th of March, 1911, when Capt. W. I. Chambers got orders to devote his full time to aeronautics. Its stature within the Navy has grown since that day when Chambers walked into the Bureau of Navigation and someone suggested that he do his work at home. The Navy then was skeptical about the new-fangled flying machine.

It took a couple of wars to change that thinking, but nobody in the Navy today believes for a minute that a fleet could fight without an all-powerful air arm. It was BUAER's job to design, build and buy those airplanes that won the war in the Pacific. When they are completed, the planes are turned over to fleet and training activities and it then becomes the job of Deputy Chief of Naval Operations (Air) to fly them.

The number one man in the Bureau of Aeronautics today is RAdm. A. M. Pride, whose Navy experience dates back to 1917 when he enlisted as a machinist's mate, second class. Eighteen months later he was an ensign in the Naval Reserve Flying Corps and from then on his work has all been with naval aviation activities.

He has been pretty closely connected with it, too, for it was Lt. Pride who developed the arresting gear installed on the Navy's first aircraft carrier, the *Langley*. He and other pilots made the first take-offs and landings.

Later, in 1934, he was in charge of Flight Test section of BUAER. Other aviation jobs on Adm. Pride's docket include such outstanding ones as being exec of the *Saratoga,* CO of the *Belleau Wood* when she raided Tarawa, Wake, the Gilberts and Marshalls, Truk, and Palau. He fought his carrier so well that she won the Presidential Unit Citation.

Late in the war he became commander of the Air Support Control Unit of the Pacific fleet and played a large part in developing that spectacularly successful tactic of the Navy and Marine Corps—close air support.

Adm. Pride has four other rear admirals assisting him in the task of running the large, complex organization that is BUAER. Immediately under him is RAdm. T. C. Lonnquest, deputy chief of BUAER. The assistant chief handling design and engineering is RAdm. Lloyd Harrison; material and services are under RAdm. W. D. Johnson, and research and development under RAdm. C. M. Bolster.

ADM. LONNQUEST combines scientific background with aviation. He is a qualified LTA pilot as well as HTA, won an MS at MIT after he finished Annapolis and has been closely connected with Navy scientific work ever since. He had a large hand in developing aircraft instruments and propellers. His experience isn't wholly in the scientific field, either, because he was skipper of VS-2 on the *Saratoga* back in 1932.

While head of power plant section he pioneered the Navy program to develop a radial engine and multistage supercharger which later were the foundation of the Navy's combat engine program of World War II. After serving the war out in BUAER, Adm. Lonnquest was director of ship material at the Bikini atom bomb tests and had charge of Navy drones there.

Adm. Harrison also lists a long record of technical accomplishments in the scientific side of producing aircraft, being production superintendent, then manager, of the Naval Aircraft Factory in Philadelphia during the war. His training there and as A&R officer at Alameda serve him well in his position as assistant chief for design and engineering.

Adm. Johnson, who heads materiel and services for BUAER, dates his aviation experience back to 1925 when he won his wings. He skippered VP-20 at one time and was in charge of aircraft

RAdm. I. C. Lonnquest

RAdm. Lloyd Harrison

RAdm. W. D. Johnson

RAdm. C. M. Bolster

maintenance in BuAer when the war began. In 1944 he was CO of the carrier *Suwannee* and won the Navy Cross and Purple Heart at Leyte Gulf action for helping defeat the Japanese fleet there. His ship won the PUC, despite severe damage from air attack.

After the war he was skipper of the CVB *Franklin D. Roosevelt* and later chief of staff to the Commander in Chief, Atlantic Fleet.

Newest admiral in BuAer is C. M. Bolster, who, like Adms. Lonnquest and Harrison, took his MS degree work at MIT. Early in his naval aviation career, Adm. Bolster was production superintendent during construction of the Navy's first dirigible, the *Shenandoah*. He later designed and tested the trapeze and airplane hook-up equipment which permitted airplanes to be operated from dirigibles and developed the mechanical handling equipment for large airships on the ground.

He was commanding officer of the *Macon* and followed this up with winning his HTA wings at Pensacola. While head of BuAer Ships Installations division, he was responsible for arresting gear and catapults and helped develop JATO, winning the Legion of Merit while in that position. From A&R officer at Alameda he returned to BuAer as assistant chief for research and development.

So much for the five admirals who direct the policies and make the decisions for the Bureau of Aeronautics. As can be seen from the brief summaries of their lives, they have plenty of know-how about airplanes and can draw upon wide experience in many fields to make their decisions.

To describe all the jobs that BuAer does would make heavy reading, but the following description will give a brief idea of what the 27 divisions' functions are, phrased as non-technically as possible, in one sentence:

Military Requirements—*Capt. C. H. Duborg.* Decides what the Navy needs in its airplanes in the way of speed, firepower and range.

Aircraft Logistics—*Cdr. R. M. Milner.* Keeps track of what planes the Navy has or will need and where each one is located.

Plans Coordination—*Capt. W. A. Schoech.* Interprets war plans and logistic and material plans received from higher authority.

Administrative Services—*S. E. Hollenbeck.* Handles mail, communications, retirement, reports and office methods programs.

Experimental Program—*Cdr. M. W. White.* Prepares and coordinates programs of research and development of planes and equipment.

Research—*I. H. Driggs.* Does analytical research and engineering for design studies.

Evaluation—*W. Z. Frisbie.* Coordinates action in regard to over-all design features of aircraft.

Technical Data—*Capt. C. L. Helber.* Articles, pictures, reports for public or service publications clear through this division.

Piloted Aircraft—*Capt. P. H. Ramsey.* Project engineers coordinate the design and engineering of naval aircraft from experimental stage to service use.

Guided Missiles—*Capt. R. S. Hatcher.* Same as piloted aircraft, except this division handles non-manned planes.

Design Elements—*Cdr. R. E. Doll.* Works out aerodynamic and hydrodynamic performance and flying qualities of plane designs and new ideas.

Power Plant—*Capt. E. M. Condra.* Designs and develops engines, accessories, fuels and lubricants.

Armament—*Capt. D. G. Donaho.* Planes need guns. This division develops all armament items that become an integral part of a plane.

Airborne Equipment—*J. E. Sullivan.* Aircraft safety equipment, instruments, navigational equipment and the like come out of this division.

Electronics—*Col. A. F. Binney.* Responsible for electronic and electrical equipment assigned to BuAer cognizance.

Ships Installations—*Capt. A. S. Hill.* Handles installation, operation and maintenance of arresting gear, catapults and other launching devices.

Industrial Planning—*Cdr. R. M. Reynolds.* Plans ahead for future national emergencies, in relation to mobilization of aircraft industry.

Contracts—*Cdr. A. R. Weldon.* Handles all contracts between BuAer and private companies making things it buys.

Production—*Cdr. M. A. Hirsch.* Responsible for getting production models of naval aircraft, including LTA.

Shore Establishments—*Capt. R. W. D. Woods.* Develops and maintains air stations and other facilities and handles automotive and collateral equipment.

Maintenance—*Capt. S. B. Spangler.* Airplanes have to be repaired and this is the division that handles that huge problem.

Supply—*Cdr. J. W. Bottoms.* Liaison with BuSandA, handles inventories, shipment procedures and surplus stocks of BuAer material.

Inspection—*Capt. C. E. Smith.* Directs the bureau's field inspection service and makes overall inspection policies.

Publications—*Cdr. T. O. Murray.* Handles all BuAer printing, such as

(Cont'd on next page)

manuals, TO's, handbooks and the like, including NAVAL AVIATION NEWS.

Photographic—*Capt. J. H. McElroy.* Develops and procures photographic equipment and material for the entire Navy and Marine Corps.

Fiscal—*Capt. J. E. Dodson.* The The treasurer for the bureau, keeping accounts and handling the budget and money matters.

Personnel—*Capt. A. O. Preil.* Civilian and military personnel placement, together with industrial relations.

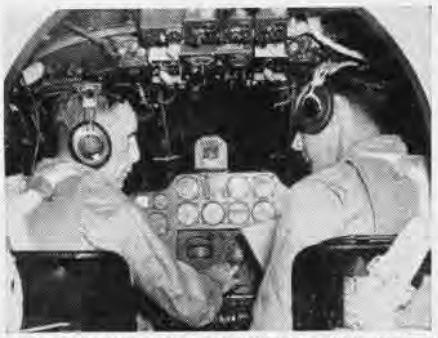
Navy Gets 30 Flying Forts

Old B-17's Used in AEW Repairs

The venerable old B-17 *Flying Fortress* which fought so well for the Air Force in the Battle of Europe is joining naval aviation as the AF turns over 30 of the planes to the Navy for research and development of airborne early warning equipment.

The planes, formerly used by the Strategic Air Command as reconnaissance aircraft, will be used as a source of spare parts for the two Navy AEW squadrons now using B-17's. One is VX-4 at Patuxent River and the other is VP-51 at Miramar.

The primary responsibility for coordinating a program of research and development for AEW electronic equipment was assigned to the Navy by the department of Defense research and development board last fall. This assignment does not conflict with the Air Force's responsibility for air defense.



ADM. GALLERY WITH INSTRUCTOR, LCDR. BELEW

Admiral Finishes AWF Work

Corpus School Sets Training Mark

NAS CORPUS CHRISTI—One of the more prominent "graduates" of the All Weather Flight School here was RAdm. D. V. Gallery, who completed his two months training on 27 October and then took over duties as deputy commander, Operational Development Force, Atlantic Fleet.

Adm. Gallery formerly was Assistant Chief of Naval Operations (Guided Missiles).

During September, pilots at the school made 1,566 instrument approaches. Radio range letdowns numbered 677, followed by 500 GCA runs. The school is operating with a capacity student load.

The record for high flight time for any one week was 757 hours, but during the week of 17 October, the flight rolled up 792 hours. During this time pilots made 166 hooded standard range approaches, 202 hooded GCA approaches, 45 hooded D.F. approaches and 148 hooded instrument approaches were made on 18 CAA range stations outside the local area. Some of these ranges were Oklahoma City, El Paso, New Orleans, Anacostia, Burbank and Glenview.

NEW CATALOG CONTAINS DATA ON NAVY, RATES

Special Devices Book Out

Lists Training Aids Now Available

A new special devices manual which replaces *Catalog of Synthetic Training Devices,* NavExos P-410, dated January, 1947, has just been published by the Special Devices Center, Office of Naval Research.

The new 172-page book, NavExos P-530, is more than a catalog of devices, containing other information which makes it, in addition, a procedure manual on the subject. Included are such items as the mission of the Center, its tasks and functions; responsibilities to the five Training Agencies—Chief of Naval Personnel, Commandant Marine Corps, Chief of the Bureau of Medicine and Surgery, the Deputy Chief of Naval Operations for Air, and the Deputy Chief of Naval Operations for Operations.

The manual also includes information on the TD rate, training courses for officers and enlisted personnel, property redistribution and disposal regulations, spare parts, methods of requesting devices, special assistance in installation, housing and layout, in addition to information on the branch offices of the Office of Naval Research.

For the first time, the manual includes a complete up-to-date index of all special devices publications.

● NAS WILLOW GROVE—Three members of the Women's Platoon, 6th Infantry Battalion, Organized Marine Corps Reserve, are now coming out voluntarily on the 2nd and 4th Sundays of each month to assist VMF-451 and MGCIS-17.

● NAS LINCOLN—Volunteer Reservist Lt. D. W. Hamilton received 17 hours of instrument instruction on his two-weeks cruise and became the first volunteer to get a standard instrument rating at this station.

When the *seaplane tender Pine Island visited Sitka, Alaska, recently 687 guests from the tiny island town came aboard to inspect the ship at the invitation of Capt. W. C. Asserson. In return, the townspeople threw a dance for the sailors, opened the doors of their churches and lodges and even offered to trim the ship's baseball team in a game—and did!*

AND THERE I WAS ....

Retort Courteous

ONE OF VR-23's jobs is to transport VIP's around on inspection tours of the Philippine islands area. One day Rear Admiral Standley was taken on an air tour of Sangley Point and the Manila Bay area.

Upon completion of the flight the Admiral addressed the pilot: "Permission to leave the ship, sir?"

"Permission granted, sir," replied Lt. Maynard Kouns very courteously.

We Aim to Please

ON ONE of the VR-2 *Mars* flights to Honolulu recently, one of the male passengers stopped the flight nurse and in an injured tone remarked that the "service is not all that I expected."

When he was asked what his complaint was, the injured passenger said, "I'm used to being awakened in the morning with a big kiss."

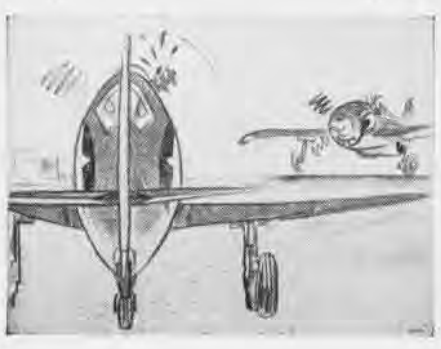
The attractive nurse turned to his male companion beside him and said, "Well, go ahead and kiss him."

It Pays

AN AIR GROUP was approaching Norfolk east field, and the lad in the lone F4U was trying to beat them in. He pulled into the traffic pattern on the upwind end of the field and found himself directly behind an F6F also making for the landing.

The first unit of the Air Group was making a straight-in and the *Corsair* gauged the distance and decided if they hurried they would make it in and not have to circle. But just then the *Hellcat* slowed up, put down his gear and flaps and started a long slow grind down-wind. The F4U pilot was ready to give up but not unheard. Sarcastically, he inquired of the *Hellcat* pilot, "Tell me, buddy, why have you put your gear and flaps down away out here?"

The answer came back restrained and innocent, "Why, son, I always put my gear down before landing. That's the way they taught me when I was a cadet."



Straight In

WHILE A cadet at NAS MINNEAPOLIS in early 1943, I was riding with my instructor getting the word on slips to circles in a Stearman. We were shooting touch and go landings at a small field in farming country. The field was barely large enough for Stearman landings, and was surrounded by deep winter snow. Glare ice from March storms covered the runways.

It was a cold day, 8° above zero, and the engine didn't take too well to take-off throttle after gliding dead stick from 800 feet down to the circle. On the third pass, after coughing and sputtering the first two when throttle was applied, it did not run well enough to get us off the field. It was enough speed, however, to make stopping on the ice impossible.

After going through a snowbank, we started to go over on our back, but were saved by telephone wires. The plane stopped vertically, balanced on the prop hub with the tail hooked in the telephone wires.

While I was lying in a snowbank near the plane waiting for the instructor to return from phoning the base, two old farmers drove up in a rattletrap Ford. They stopped to look at the unfortunate flying contraption.

"Wuz you in that there plane, son?" one asked kindly.

"Yep," I replied.

"Didja get hurt?"

"Nope," I answered.

One must stop to visualize the perfectly vertical aspect of the aircraft before getting the full import of his next question.

"Sure was lucky!" he mused, "How fur didja come down from?"

GENE C. TENOLD, LT. (JG)

Shoot, Then Ask

EMBARRASSED indeed was LCdr. A. L. Williams, USNR, while on a recent 14-day tour of active duty with the VR-44 navigation department.

A San Jose State College professor, LCdr. Williams was taking some sun shots with an octant.

An alert Marine sentry, thinking the instrument was some kind of camera, arrested him for taking illegal pictures and marched him off to the guard house.

Fancy Meeting You Here!

WHEN Lt. J. J. Jackson, USNR (inactive), whose civilian job is CAA inspector at Big Spring, Texas, applied for two-weeks training duty, he was assigned to NAS MOFFETT FIELD.

Neatly uniformed and armed with orders directing him to proceed to El Paso and there pick up government air for Moffett, Jackson first reconnoitered the airport at Big Spring. He was pleased to find the pilot of a Navy JRB, on ferry flight from the Beech factory at Wichita, about to take off.

The would-be hitchhiker approached the Navy airman—anonymous and rankless in the informality of flight garb—and asked for a lift.

"I have orders to report to the commanding officer at Moffett Field."

"Welcome aboard," was the genial reply; "I am the commanding officer at Moffett Field."

Who's Excited Now?

LT. JACK ——— was returning to his home base after a gunnery training flight on which he had not expended all his ammunition.

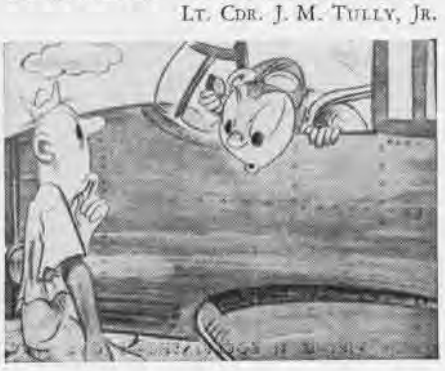
As he landed his fighter he inadvertently raised his wheels and skidded the airplane on its belly to a heart-sickening stop.

Knowing that he still had unexpended ammunition in his magazines and fearing that his guns might fire as a result of the jolt of the non-orthodox landing, he hurriedly jumped out of the cockpit and tried to open the magazine covers and remove the ammunition.

As he did this the crash truck arrived on the scene. Excitedly he asked the first member of the crash crew who approached, "Do you have a screwdriver?"

The answer came back, "No sir, I'm not the screwdriver. I'm the fire truck driver."

LT. CDR. J. M. TULLY, JR.



MAN-MADE MOON? MAYBE!

COMIC STRIPS and pulp magazines with their fantastic stories are straining to keep up with the times. They can't be content with mere interplanetary travel, only dream stuff.

They have good reason, too. The scientists have been giving them a chase. Recent research has uncovered a wealth of information about our atmospheric umbrella and what lies beyond it. It would take full time reading and wide technical knowledge to keep up with it all, however.

Many recent discoveries were put up in one package to inform us who can't do all that reading. It was a report on *The Earth's Atmosphere* by Howard E. Roberts, an aero-thermodynamics engineer of the Douglas Corporation, released in October. He revealed a world of high nuclear radiation, vertical velocities of hurricane force and bombardment of quintillions of stray particles from outer regions every second. He tells a story of the formidable barrier existing between us earthbound mortals and other worlds and what we have accomplished in penetrating that barrier. He speaks candidly of satellite vehicles and rockets to the moon. The old idea that there is a sharp dividing line between interstellar space and our atmosphere has been disproved—so far it has been identified as such to 10,000 miles. One man says 43,000 miles. Meteorologists, astrophysicists, aerodynamicists and physicists have all contributed to this knowledge.

Pilots are familiar with the flow of air over an airfoil and the laws applying to its behavior. This is the realm of gas dynamics. It extends up to about 100 miles. Between 100 and 375 miles lies a transition or "slip flow" region, behavior of the air depending on speed. Above that is found what is called "free molecular flow."

Up to 80 miles molecular nitrogen and molecular oxygen exist in the 80-20 ratio found at the surface. Above 80 miles oxygen breaks down from 0_2 to 0_1—the atomic form. Above 300 miles nitrogen also changes into the atomic form. From 300 to 7,000 miles oxygen decreases in proportion to nitrogen and completely disappears. From 7,000 to 10,000 miles hydrogen and helium are present in a rough 80-20 ratio.

Roberts states that it is theoretically possible to build an earth-escape rocket with presently available fuels, but the expenditure would be exorbitant. A return flight must always be borne in mind. To escape the earth's gravitational force would require an escape velocity of 25,000 mph; from the moon 5,300 mph. A velocity of 17,400 mph would establish a little man-made moon in an orbit of its own.

A GLANCE at the big chart reveals that temperature rises to 4,000° F. at 400 miles and above. What, then, would happen to a vehicle? The answer is that particles are so widely scattered that whatever heat they transmit to a vehicle would be lost in radiation. Coming down would be dangerous, however, because of heating from air friction.

A greater hazard is meteors. One of these bits of material, averaging the size of a pea and traveling up to 170,000 mph, could abruptly terminate a flight. Above 35-50 miles, their vaporizing altitude, they are high speed bullets.

Weather disturbances originate primarily in the troposphere, but secondary causes are found in the outer atmosphere. With flights going ever higher on an average, meteorologists are showing increasing interest in the upper regions.

One thing they are sure of—the stratosphere is far from the calm region once thought. Noctilucent clouds, first observed by the Norwegians at altitudes from 50 to 60

MARTIN VIKING II ROCKET SHOWS ONE WAY TO PROBE UPPER AIR

HIGH ALTITUDE BALLOONS LIKE THIS PLASTIC ONE ARE USED TOO

PHENOMENA OF THE TROPOSPHERE, STRATOSPHERE, IONOSPHERE AND EXOSPHERE ARE SHOWN IN THIS CHART PREPARED BY DOUGLAS AIRCRAFT CORP.

miles, sometimes have *vertical* velocities of 250 mph, which is as bad as the most violent thunderstorm.

Garnering information about the atmosphere utilizes every type of observation from actual analysis to theoretical studies. Studies are made by means of radiosondes (balloons), rocketsondes and aircraft. Reflection of abnormal sounds and spectroscopic studies of auroras and night sky light have revealed the temperature distribution and composition of the upper atmosphere.

WHEN meteors appear, leave a path and disappear, they establish temperatures, densities and winds in the upper regions. Radio wave reflections have uncovered the various levels at which ionization occurs. The earth's terrestrial magnetism has been found to vary with the time of day and season. It influences conductivity of the ionosphere and probably has something to do with upper winds.

The sun and moon have an effect not only on the oceans and the earth's crust but on the upper atmosphere, too. Analysis of barometric fluctuations revealed tides rising and falling in our atmospheric blanket.

Studies of the escape of helium and other gases from the atmosphere indicate that their atoms have great speeds, which means extremely high temperatures.

The most important role our air blanket plays is shielding us from intense burning by ultra-violet rays. If the rays weren't absorbed between 20 and 50 miles altitude, life as we know it on the earth would be impossible.

Cosmic rays constantly bombard the earth to the tune of two quintillion (two million million million) per second. Their source is uncertain.

Great blasts, such as the Bikini explosion, are reflected by a hot region 20 to 40 miles up. Zones of silence between the immediate scenes of the sounds and hundreds of miles away explain why some blasts are heard distantly but not near the source. Peculiarly, Queen Victoria's funeral furnished the first example of this phenomenon. Guns fired were audible and inaudible in concentric zones around the source. The destruction of the old Nazi stronghold, Helgoland, in one tremendous blast in 1947 was observed for sound and seismic phenomena, as was Bikini. The world's greatest explosions—the eruption of the East Indian volcano Krakatoa in 1883 and the Siberian meteor of 1908—set the entire atmosphere in oscillation and sent dust high in the air which affected the rays of the sun for two years.

Reduction in pressure has definite effects on the human body. What happens where there is a lack of oxygen pressure is well known. At a pressure altitude of 55,000 feet the dissolved gases in the body and water vapor expand and cause the body to swell up like a balloon. Disregarding that expansion, there is an additional hazard at 63,000 feet because the blood boils at its normal temperature there. With high flying aircraft the loss of cabin pressurization would be tragic. With high flying craft consideration will have to be given other effects, too, such as the influence of ultra-violet solar radiation, cosmic rays and meteors.

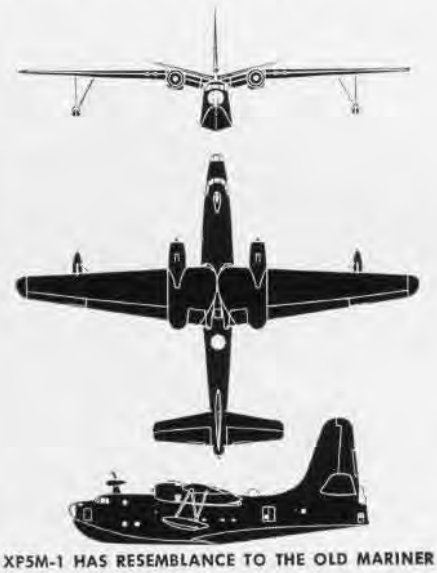
Light you see on a clear moonless night isn't what you think it is. Night sky light has five constituents: direct and scattered starlight, 30%; zodiacal light, 15% (nobody knows where this comes from); galactic light, 5%; luminiscence of the night sky, 40%; and a combination of scattered light from zodiacal, galactic and luminescent lights, 10%.

Auroras, seen only in temperate and arctic regions, are spectacular and furnish much information. Most occur from 60-70 miles up, but some are as high as 700 miles. They are electrical phenomena and follow sunspot activity cycles.

Little justice can be done this subject in so little space. Anyone wishing to read the report in its entirety, a fascinating one-hour job, can find it in the October, 1949, issue of the *Aeronautical Engineering Review*.

WORLD'S FLYING BOATS

STUBBY FUSELAGE, HIGH TAIL AND STRAIGHT LINES OF HULL DISTINGUISH MARTIN'S XP5M-1



XP5M-1 HAS RESEMBLANCE TO THE OLD MARINER

THE FIRST U. S. Navy flying boat, a Curtiss product with a 75 hp engine from which two propellers were operated by chains, was added to the Navy's Air Force in 1912. During the following three years the Navy acquired a total of 18 aircraft, of which all but one were waterborne. From these primitive-type biplanes, powered by heavy, inefficient engines mounted on clumsy hulls, was evolved our present day concept of the flying boat.

The development of this type aircraft has not been monopolized by the United States, as can be readily seen from a glance at the photographs. Indicative of today's concept is the fact that the world's flying boats have, like landplanes, almost stabilized into a common layout. Whereas the landplane now has, almost without exception, a low-wing monoplane design and a retractable landing gear; the flying boat has a high wing, a deep hull, a high set tail unit and in many cases retractable wing tip floats. These salient features of the flying boat, which single it out from other types, are good from the recognition point of view.

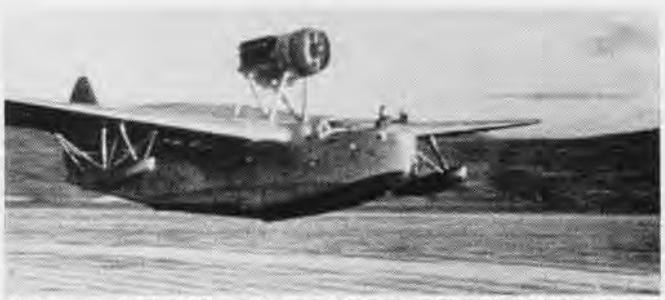
The reasons for these features stem from the necessity of having to set the wing high on the hull to keep the propellers' tips above the waves and the need to keep wing-flaps clear of the water. Also the tail unit has to be kept as high up as possible because on take-off the water forces, on the forward part of the planing bottom, tend to rotate the hull so that it runs in a slightly tail-down position.

Consequently, if the tail unit were not set high, it would be subject to severe damage from water spray. At rest the flying boat presents a problem, because of its high center of gravity. If there were no wing floats the aircraft would roll over in the water sideways. Another method of providing lateral stability to the flying boat while at rest is the sponson, a short stub-like wing fixed directly to the side of the hull at the level of the water line.

Flying in the world's air forces, operationally and experimentally, are a large and varied assortment of interesting type flying boats. For a general review this necessitates presentation in two parts, the first of which includes a selection of the world's light flying boats of two engines or less. A roundup of the heavier types, four engines or more, will follow in a future edition.

XP5M-1—Martin's latest experimental flying boat is a twin-engined gull-wing patrol boat built for the U. S. Navy to evaluate a new type of hull design. The chief design feature of the new flying boat is the length and depth of the hull aft of the main Vee step. This long afterbody is designed to permit softer landings in rough seas without excessive pitching and bouncing and to reduce normal take-off time and distance.

Another feature is the large single vertical tail for maximum control and stability. An operational design feature of the XP5M-1 will be the provision of droppable sponson tanks which will not only add fuel capacity and range but will also provide additional planing area for increased water landing performance. Two Wright R-3350 engines rated at 2,700 hp each are fitted, giving an estimated cruising speed of 120 knots at approximately 1,500 feet. A fixed float is attached by struts outboard of each engine nacelle. The wing span is 118 feet and the hull is 88 feet from stem to stern. It carries a crew of 11 and has approximately the same gross weight as its predecessor the PBM *Mariner*.



RUSSIAN MBR-4 IS SINGLE-ENGINE SHORT-RANGE RECONNAISSANCE PLANE

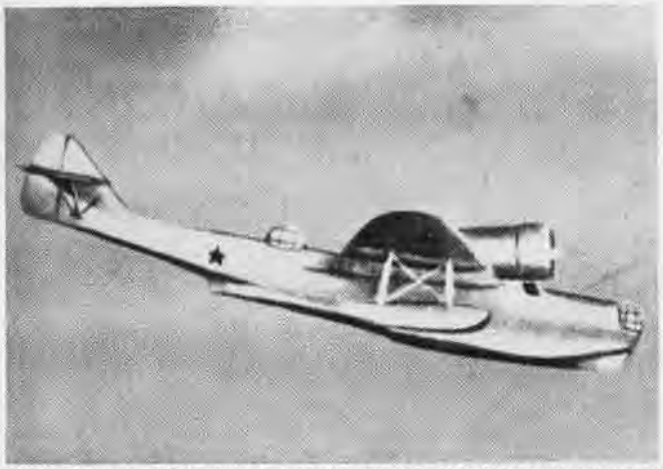
FRENCH NOROIT EASY TO SPOT WITH THREE TAILS, 1600-HP ENGINES

From a recognition point, the forward portion of the hull and the wing of XP5M-1 and PBM are similar. The prime difference is the XP5M-1's large single-fin and single-step hull.

MDR-6—This Soviet aircraft is also designated under the old system with MDR signifying long range reconnaissance flying boat. Although little information is available concerning the MDR-6 it is believed to have been designed by Blochavindin and placed in operational service during World War II.

The MDR-6 is a gull-wing type flying boat with an overall span of 64 feet. Attached about halfway between the two-step hull and wing tips are fixed single-step floats. Twin-radial engines rated at 985 hp each are mounted at the extremities of the wing's center section. Cruising speed has been estimated to be around 150 knots at 10,000 feet with a crew of five to seven aboard.

S.R./A1—The British S.R./A1 is a high-wing all-metal single-seat jet fighter flying boat built by the firm Saunders-Roe Ltd. It was originally conceived for operation in the Pacific theater, but the war ended before its completion. Construction of the prototype began in the summer of 1945 and was culminated by its first flight on 16 July 1947. It



TWIN ENGINES, LONG FUSELAGE, SMALL RUDDER FEATURES RUSSIAN MDR-6

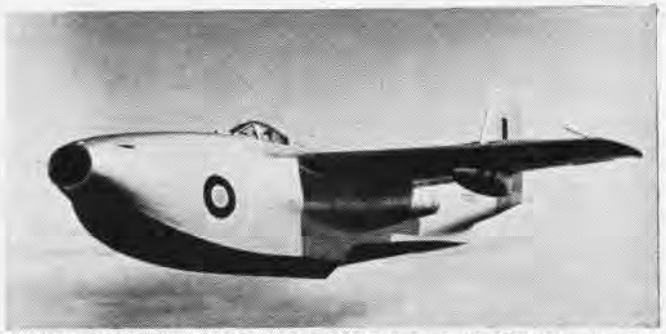
was the first jet-propelled flying boat in the world to fly.

The two-step hull has closely spaced frames and relatively light stringers with the main step having a faired Vee form. Spanning 46 feet, the wing is provided with dive brakes and dive-recovery flaps. Forward of the wing is the pressurized cockpit, with ejector seat and the four 20-mm guns. Two Metropolitan-Vickers *Beryl* 1 jet engines of 3,800 lbs. thrust each are mounted side by side in the hull and are fed by a single broad air intake located high in the bow.

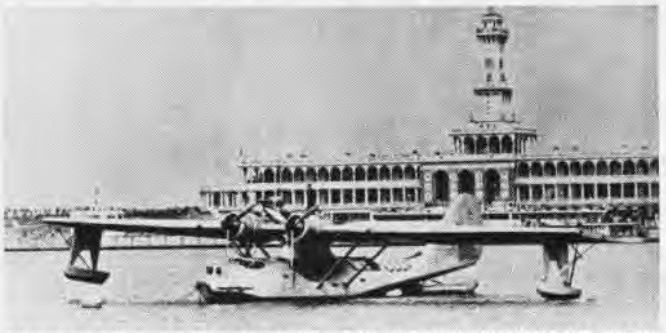
A retractable fairing projects forward from the air intake to prevent spray entering at take-off and landing. Exhaust is through circular jet outlets, one on each side of the hull aft of the wing.

Nord 1400 Noroit—The first Nord 1400 Noroît made its initial flight on 7 January 1949. Developed by SNCA du Nord, the Noroît is a twin-engined search and rescue patrol boat which is in production for the French Navy. Construction of 25 of these aircraft has been planned with a number to be completed as amphibians and designated 1401.

The two-step hull has accommodations for a crew of seven and is of all-metal construction. Mounted high on the hull is a trapezoidal gull wing, spanning 103.7 feet, with fixed strut floats. Two Ghôme-Rhône radial engines rated at 1,600 hp each are fitted at the extremities of the wing's center section. Its estimated cruising speed is 115 knots at 1,700 feet. The range is 1,347 nautical miles.



WORLD'S FIRST JET FLYING BOAT FIGHTER IS THIS ENGLISH S.R./A.1.



FAMILIAR LINES OF PBY CATALINA SEEN IN THIS RUSSIAN GST PLANE

Here again, when the Nord 1400 is examined from a head on view, there is a resemblance to the PBM *Mariner*. A noticeable difference, however, is the Noroît's triple fins and rudders and its shallow hull.

MBR-2—Soviet aircraft and engines are designated by an abbreviation of the designer or designing committee, followed by a number which is not always in the correct chronological order. Previous to this system the Soviets designated aircraft according to the duties for which designed. The latter system is applicable to the MBR-2, which indicates that it is a short range reconnaissance flying boat.

This single-engined aircraft is an old design and first saw operational service prior to World War II. Its present duties consist of fishing patrol work such as spotting shoals of fish and calling up trawlers. Wartime duties probably would be limited to mine spotting and the calling up of mine-sweepers.

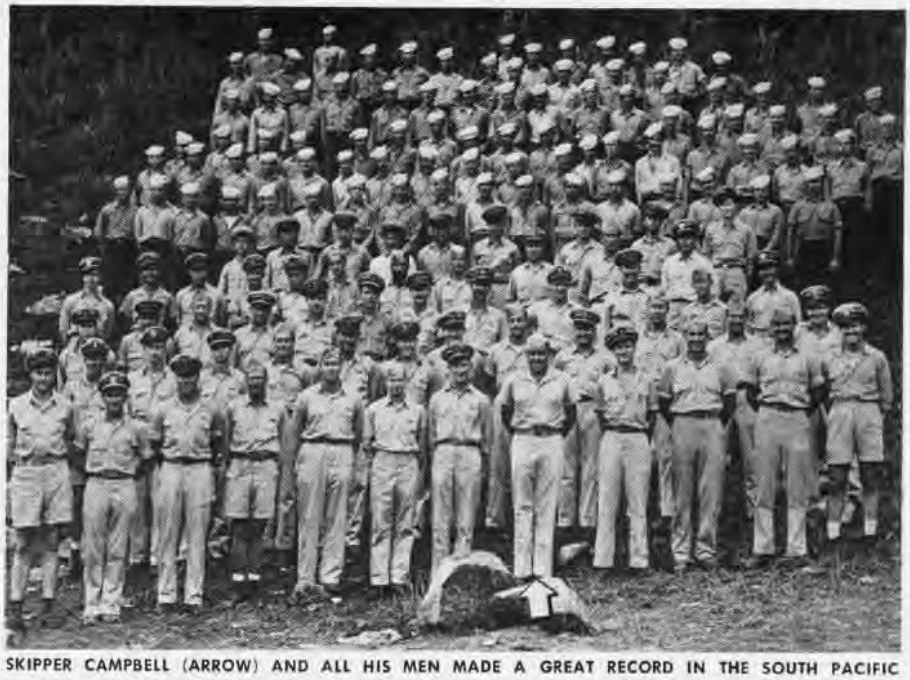
The MBR-2 has a two-step hull of wood and metal construction with accommodations for a crew of four or five. A wing with a 64 foot span is mounted high on the hull and has fixed single-step stabilizing floats attached about halfway between the hull and wing tips. Carried above the wing on "N" struts is a single 800 hp in-line Vee engine which drives a pusher propeller. The estimated cruising speed of the MBR-2 is 110 knots at 5,000 feet.

GST—The GST is the Soviet version of the U. S. PBY-1 *Catalina* built under license in the USSR. Originally designed and constructed by Consolidated Aircraft Company, the *Catalina* has also been built by the Naval Aircraft Factory (PBN-1), Boeing Aircraft of Canada Ltd., (PB2B-1) and by Canadian Vickers, Ltd., (PBV-1). In addition to the aircraft built under license, the Soviets procured a number of PBY's during lend lease. The significance of the designation GST as applied by Soviet Air Force is unknown.

The GST is characterized by its shallow two-step hull, broad parasol wing and high horizontal stabilizer. Spanning 104 feet, retractable floats fold outward to form end caps at the wing tips. Two nine-cylinder radial engines are installed providing 985 hp each and a cruising speed of 125 knots at 1500 feet. The aircraft normally carries a crew of eight. Reports are the GST is still operational.

★ THIS IS the twenty-fourth of a series of short sketches of squadrons in World War II. It is based on reports filed with Aviation History and Research, DCNO (Air).

PATROL SQUADRON ELEVEN



SKIPPER CAMPBELL (ARROW) AND ALL HIS MEN MADE A GREAT RECORD IN THE SOUTH PACIFIC

WHEN PATROL Squadron Eleven under the Command of Lt. Cdr. Clifford M. Campbell, USN, re-formed at San Diego 16 March 1943, it had behind it a tradition of airborne warriors who had from Pearl Harbor through the Guadalcanal operations steadily taken part in patrol coverage and fought back in the early grim months of the war.

On its second tour, VP-11 engaged in *Black Cat* operations which cost the enemy approximately 100,000 tons of critical shipping. During April 1943, VP-11 went to Hawaii, and from there engaged in continued training and war patrols with sections operating out of Canton, Johnston, and Midway islands. From June to September the squadron operated from its new base, Perth, patroling the western and northwestern coasts of Australia.

In October, the squadron was based aboard the USS *San Pablo* and the USS *Half Moon,* anchored in Jenkins Bay near Samarai, British New Guinea. It worked under the administrative command of FAW-17 and ComAir Seventh Fleet and under the operational control of ComTask Group 73.1 and the Fifth Air Force.

The story of VP-11 is starred with exciting episodes. On the night of 4 October, Lt. J. D. Cruze and his crew bombed enemy dock and warehouse installations on Garove Island, leaving them aflame.

Shortly after the strafing runs were completed, a fire broke out in the tunnel gun compartment. With the whole aft end of the hull ablaze, Lt. Cruze coolly landed the plane in the heavy sea within several miles of enemy installations. The crew led by plane captain, Thomas Fore, ACMM, formed a bucket brigade and succeeded in extinguishing the fire after it had burned large holes in the hull aft of the step and above the water line. Then as skillfully as he had landed the PBY-5, Lt. Cruze took off and returned to base.

Death took a holiday, but not Danger when on October 11 at 2300, Lt. (jg) T. L. Hine attacked and probably damaged an enemy submarine. In a glide bombing attack, the pilot dropped two bombs, one of which landed just ahead of the swirl as the submarine crash-dived. The other unfortunately exploded prematurely on water contact and damaged the plane extensively.

Enough control was maintained to make a safe landing in the open sea about four miles south of the enemy base at Gasmata, New Britain. The plane sank in a matter of minutes, but the crew managed to launch and equip both rubber life rafts. Lt. Hine decided to attempt to reach Kiriwina Island 150 miles to the south, and under his skillful leadership, the boats were rowed 90 miles in 65 hours. When they were within 60 miles of Kiriwina Island, they were spotted by an RAAF plane and a PBY-5A was sent to the rescue.

ON 24 OCTOBER, Lt. (jg) L. M. Nelson made a radar contact on two enemy destroyers. After dropping flares, the *Catalina* attacked the after DD which immediately started to zigzag. As the ship turned away, the pilot in a glide bombing attack went after the leading DD. Lt. Nelson's crew withdrew as the second DD to be attacked lay dead in the water ablaze from amidships to stern.

It was during this month that the USS *Half Moon* relieved the *San Pablo,* the squadron continuing its heavy rounds of patrol. Skipper of the *Half Moon,* Commander W. O. Gallery, was an ardent supporter of night bombing, and pilots of VP-11 have always been sure that his enthusiasm for *Black Catting* was a decisive element in their success in this highly hazardous operation.

While at Perth, Australia, when first they found that their planes were being painted black, they knew that night patrols lay ahead, and their eagerness to be at the enemy was only exceeded by Cdr. Gallery's desire to unleash the forces aboard his ship so well equipped that the enemy would not find in darkness any disguise that would save him.

It was in November that the character of operations was changed from a routine defensive search and barge hunt to an offensive reconnaissance with enemy shipping in the lanes between Kavieng and Rabaul, or wherever found, as the primary objective. As Commander Gallery pointed out at that time, "The number of enemy ships sighted and attacked with a fair proportion of hits (during the last two weeks) indicates that this is the most lucrative employment of *Black Cats.*"

On the night of 14 November, Lt. Walter E. Shinn made a run worthy of this former All-American football star from the University of Pennsylvania, when he sighted a convoy. He attacked and damaged a tanker. Then he saw a cruiser ahead and went on to score two direct bomb hits on the stern of the warship. When asked if he saw the cruiser sink, Lt. Shinn replied, "Due to heavy antiaircraft fire, retreat was hurriedly accomplished." It was wiser to leave the Japs to do the checking.

The very same night Lt. J. R. Penfold hit a large merchantman amidships. In the face of intense AA fire on three runs and in the forbidding presence of enemy night fighters, Lt. Penfold and crew accepted the heavy flash and the flying debris of the ship as evidence

WARTIME, PEACETIME, THERE'S ALWAYS COFFEE TIME IN THE NAVY

A GREAT CATALINA NEGOTIATES A NARROW RIVER TO MAKE A RESCUE

of success. That was the cash; let the credit go.

A few days later, on November 20th, so devastating was Lt. Penfold's attack on a 10,000-ton freighter-transport that he established beyond question its fiery end. On a single run, Lt. Penfold scored two direct hits, one forward and one aft, with a possible third hit amidships. The fires observed were visible 30 miles away.

Toward the last of November, VP-11 was transferred to Port Moresby from where the squadron engaged in convoy duty day and night, rendered assistance to the Army in the Cape Gloucester strike, performed rescue and food supply missions, and evacuated the Australians' Sepik River post near Wewak in New Guinea. Of all the odd jobs the squadron was called upon to perform the Sepik River evacuation was the most spectacular. On 16 December, the project was begun to take out 219 Australian officers and men and 25,000 pounds equipment.

WITH THE Japanese only a few miles away, the first *Catalina* landed on the winding river—only two wing spans wide—with a strong current running. Since fog usually closed the river down to 50 feet, only *Black Cat* magic—the art of handling a heavy patrol plane on water just enough to float it—made navigation and landing possible. It required *seventeen* trips in five days to complete the job. Not only did the *Catalinas* have to land deep in enemy territory, but they had to fly across high mountain ranges—without oxygen equipment or superchargers—and deep jungles. That VP-11 completed the mission without mishap is a tribute to human skill, daring and the fine performance of Lt. W. S. Van Benschoten's maintenance gang. Lt. T. H. Ragsdale, later lost in action with a crew of 10, evacuated the last of the personnel as the Japs closed in.

On 28 December, VP-11 was directed to proceed to Palm Island where for the month of January, 1944, they participated in training and administrative flights. From February through the first part of July, VP-11 again operated out of Perth, making operational, test, training and utility flights which, while they were not as exciting as actual combat, were just as essential.

In the middle of July the squadron was transferred to Samarai, New Guinea, to begin an intensive round of convoy duty, night and antisubmarine strikes, and rescue missions. Accurate and timely information was always available from Lt. W. F. Fox who ferreted dispatches with the same candor with which he served those Philadelphia clients.

By August, the squadron had moved to Maois Woendi, near the island of Biak in the Schouten Islands, to renew *Black Cat* activities and continue antisubmarine patrols. During this month, VP-11 flew 41 *Black Cat* missions, 20 AS patrols and made two air-sea rescues. Advance base was established near New Amsterdam Island on the tip of New Guinea. This enabled the *Cats* to prowl in the Philippines.

On the night of 3 September, Lt. Cdr. Thomas S. White, commanding officer of VP-11, and Lt. T. L. Hine struck the Japanese hard. Lt. Cdr. White found 12 ships, 80 to 130 feet in length, north of Tanamon in the Celebes. By strafing and bombing, he destroyed two others. Lt. Hine patrolling Davao Gulf, attacked several barges with unobserved results and sank a 6,000 ton Fox Tare Baker on the east side of Malalag Bay.

CDR. GALLERY AND CREW OF HIS 'BLACK CATS'

As the campaign gathered momentum in the Pacific, advance bases were established in Morati and later in Leyte. It was here that VP-11 was relieved by PBM's in October 1944.

Patrol Squadron Eleven, veteran of battles from Guadalcanal to Leyte was going home, and so was the old PBY, handy work-horse and gallant fighter in nearly every major campaign in the southwest Pacific. Displaced by the faster, heavier bombers, the PBY was now retiring to the corrals of training commands and air-sea rescue units. The airplane that had slugged it out was assigned to training and spread its sturdy wings over fledglings.

VP-11 was one of the first patrol squadrons in naval history to receive the Presidential Unit Citation, awarded for their search missions and anti-shipping attacks in the Japanese controlled area of the Bismark Sea from September 15, 1943 to February 1, 1944. The citation pointed out that the Squadron had rendered "pioneer service in changing the passive defensive search into a bold and powerful offensive," and had "utilized the full potentialities of the PBY plane and its equipment, locating enemy task force units and striking dangerously by night in devastating, masthead, glide bombing attacks to insure vital hits on the target." Six years have passed, but the Navy has not forgotten its stirring battle record.

Reserves Go Up The Ladder

CHEWNING GETS ORDERS FROM LCDR. SHEEHAN

'TRY THIS ONE' SAYS WAVE SCHLEPP TO ENS. DONALD D. AS ENS. DANIEL D. MILLER LOOKS ON

THE ROAD to advancement is wide open to ambitious enlisted Naval Air Reservists who want to get ahead.

Given the green light, the citizen sailors have been making the most of their opportunities. From 1 July 1948 to 30 September 1949, 5946 Organized Air Reservists and 4211 Reserve stationkeepers were advanced or changed in rate.

In addition, a good number obtained commissions as Reserve officers, while many others were accepted for Naval Aviation Cadet training, the Reserve Officer Candidate program or the Naval Academy.

A large group of stationkeepers continued their education under the USAFI program and won high school diplomas and college credits.

Take the enlisted Reservists at NAS MINNEAPOLIS, for example. From the time the technical training department started functioning until the end of fiscal 1949, 16 men had been selected as NavCads, 16 had been enrolled in the ROC program, 8 had qualified for the Naval Academy and 11 had been granted commissions in the Reserve.

Some 161 stationkeepers had passed their high school GED exams and 29 had completed GED college level courses.

From 1 July 1948 to 30 September 1949, 465 Organized Reservists and 230 Reserve stationkeepers at NAS MINNEAPOLIS had advanced or changed in rate.

And the story is the same at all of the rest of the 27 stations and units in the Naval Air Reserve Training Command.

At NARTU ANACOSTIA, 375 Organized Reservists (out of 877) and 131 stationkeepers (out of 306) worked their way to new ratings during 1948 and 1949. In October, typically, 50 O-2's at NAS GROSSE ILE and 25 O-2's at NAS BIRMINGHAM were advanced, and NARTU JACKSONVILLE gave exams for advancement to 72 O-2's and 30 stationkeepers. During one four-month period, no less than 27 men in FASRON-67 at NAS OLATHE went up in rate.

Organized Reservists who climbed to chief included Henry J. Sardenga AMSCA and Fred F. Cazenave ABUCA of FASRON-63 at NAS NEW ORLEANS. Paul P. Legg of VP-ML-71 was one of seven men advanced to chief at NARTU ANACOSTIA.

Typical of the many O-2's who were selected for NavCad training at Pensacola were three from Anacostia—T. W. Chewning, former ADE2 with VF-52; Marshall B. Armstrong AEM3; and John E. Gogarty, former AL3 with VA-51-A. Kenneth J. Simmons was the fourth man at NAS OAKLAND to receive NavCad orders, while Robert J. Fox, former AD3 with the maintenance department at NAS NEW YORK, was one of the Reserve stationkeepers to be tapped for the program. Anthony F. Sprycha of VR-60 was one of the Reservists from NAS GLENVIEW selected as a NavCad.

Organized Reservists were also well represented on the Reserve Officer Candidate rolls. Last summer, for example, NARTU SEATTLE sent four men from its squadrons to ROC training at San Diego, and NARTU JAX sent three Reservists to ROC school at Newport. The latter, Harvey H. Bush Jr., Robert E. Halat, and William L. Grissom, were all students at the University of Florida. Anacostia standard bearers at ROC training were John L. Fitzpatrick, Theodore M. Daly Jr., Joseph L. Jennings, Thomas J. O'Brien Jr., Raymond H. Mulligan, and Edward J. Fitzpatrick.

NEW CHIEFS CAZENAVE, SARDENGA GET WORD

On the Naval Academy front, the enlisted Reservists at NARTU LAKEHURST have made an unusually good showing. Eight received appointments in 1948, while another 14 were selected in 1949.

Among those appointed from NARTU ANACOSTIA were Steve B. Boggs, formerly of VA-65-E, David O. Alexander, Thomas H. Allen and Randolph C. Handack. Candidates from NAS MINNEAPOLIS included: Richard S. Bearman, George A. Broz and R. A. Nelson. Other Reservists, who were selected, included: John J. Sollars of NARTU SEATTLE; Robert C. Hanmore and John T. Burkhardt of NAS GLENVIEW; Donald K. Harrison and Theodore B. Kalil of NAS LOS ALAMITOS; and William L. Cleveland, Jr., of NAS MIAMI.

Former O-2 personnel who have been commissioned in the Reserve during the past months include: Lt. (jg) William Coleman and Lt. (jg) John Dolan of NAS OLATHE; Ens. Warnes and Ens. Fenner of NAS COLUMBUS; Ens. Donald E. Moore of NAS ATLANTA; Ens. David O'Connor of NAS SQUANTUM; and Ensigns Donald D. and Daniel D. Miller of NAS OAKLAND.

Lt. Coleman of FASRON-167 and Lt. Dolan of VF-55-L both took over officer billets in their original squadrons. Ens. Warnes, former AL2, became ATT officer in FASRON-153, while Ens. Fenner became supply officer for FASRON-53.

Ens. Moore, who served with FASRON-

CAPT. HARRIS AWARDS H. S. DIPLOMAS TO NEW ORLEANS RESERVES

AFTER SOAKING, LEGG GETS HIS CHIEF'S HAT FROM LCDR. CLAGGETT

152 for two years before he got his commission, has been employed as an industrial engineer since his graduation from Georgia Tech. The Ensigns Miller, identical twins who served as combat aircrewmen during the war, are now upperclassmen in the Engineering School of the University of California.

While many of the Organized Reservists have been continuing their education as full-time students at nearby colleges, stationkeepers have been piling up academic credit in their off-duty time. At all of the Reserve stations, educational officers have been doing a brisk business in handing out USAFI courses and in giving General Education Development Tests.

And if you don't think the Reservists are getting results, look, for example, at the record they have chalked up at NAS NEW ORLEANS. In September, high school diplomas were presented to Thomas P. Roy AD2; Thomas J. Lynch SK3; Bernard J. Hatch SK1; Joseph Meyers HM3; Armando F. Delara YN2; Joseph J. Decklman AM1; Sidney L. Campo AM2; and A. B. Blache Jr. AD3 (all of whom are shown in the picture). In October, 12 high school equivalency certificates and five diplomas were granted to other enlisted stationkeepers and 12 more certificates were awarded during November.

At NAS MIAMI, A. R. Doyle BM3 recently was given a high school diploma in lieu of two years attendance after he had successfully passed the GED test. And at one inspection at NAS ATLANTA, 24 men received diplomas or state certificates of equivalency earned through the USAFI program.

Notable among the recipients at Atlanta was Charlie C. Jones AM2, who had been forced to leave school in 1923 for financial reasons after he had finished the eighth grade. After plugging away at one USAFI course after another, Jones passed the GED exam and won a certificate of equivalency.

Now that two years of college credit for Navy purposes may be obtained by successfully passing the college level GED test and the 2CX educational qualification test, many of the stationkeepers are gearing for these exams. At NAS COLUMBUS, for example, eight men are boning up for the college GED test and several chiefs who have already passed this test, are digging in for the 2CX exam. NAS MINNEAPOLIS also reports a spurt in interest in courses leading to two-years college credit.

When it comes to getting ahead, the Organized Marine Air Reservists are showing the same kind of drive and have come up with equally good results. At NARTU ANACOSTIA, for example, six enlisted Marine Reservists from VMF-31 have been commissioned in the Reserve, two have been accepted by the Naval Academy, and one who graduated from the Platoon Leaders Class, is now a 2nd lieutenant in the Reserve. Those commissioned 1st lieutenant were former S/Sgt. John W. Toomey and M/Sgt. Larry A. Harris. Arnold J. Olson, former S/Sgt., and Marvin I. Gelles, former T/Sgt., are now 2nd lieutenants, as is Howard R. Haufman, the former platoon leader. Former T/Sgt. Roy E. Throckmarton and Cpl. Henry Hood are now warrant officers. Cpl. Bruce F. Ogden and Pfc. Franklin D. Shakespeare were the two Reservists from VMF-31 selected for the Naval Academy.

Dallas Reserve Shows How It's Done

Lt. (jg) D. R. Enderby of NAS DALLAS demonstrated what can be done when a fellow really gets into the spirit of selling a tried and proven product like Naval Air Reserve training.

On one fine weekend, alone and unassisted, Lt. Enderby brought 20 recruits down with him to Dallas. Nineteen are now full-fledged members of one of the Organized Reserve squadrons.

Lt. Enderby, who is the assistant maintenance officer of FASRON-154, has been active in the Organized Reserve for two years. His home is in Durant, Oklahoma, and he regularly manages to make the long trek to Texas for weekend training with his squadron.

LT. (JG) ENDERBY LINES UP WITH 17 OF THE MEN HE BROUGHT INTO THE ORGANIZED RESERVE

BOSTON GETS TWO NEW VAU'S

TWO NEW Volunteer Aviation Units, VAU 1-4 and VAU 1-5 (CIC), have been activated in Boston in this fiscal year.

VAU 1-5, is setting a unique pattern in consolidating aviation-surface Volunteer training.

Since there were not enough CIC Volunteer Reservists with an "A" classification trained in fighter direction to form a reasonably sized unit, it was decided to open membership in the unit to surface-trained CIC officers. As a result, the unit includes about 50% of each category.

This arrangement is most advantageous inasmuch as it brings together surface and aviation electronics officers and thus each group learns more fully about the problems of the other.

The speakers are chosen so as to alternate, more or less, between aviation and surface subjects. Plans are underway for a series of lectures to be given by various professors from the Massachusetts Institute of Technology on the most recent advances in radar equipment.

Commanding officer of the unit is Cdr. Lewis C. Mattison, who had wide experience in CIC and fighter direction work during the last war. In civilian life, Cdr. Mattison is the Boston branch manager for the firm of Calvin Bullock.

Cdr. Channing Frothingham, Jr., is the CO of VAU 1-4 and has been instrumental in building up its membership. Most of the officers in this unit are non-flying aviation officers, all of whom have "A" classification.

AIR RESERVISTS IN VAU 1-4, BOSTON, LINE UP WITH CO FROTHINGHAM (CENTER 2ND ROW)

Airline Experts Make Up VAU 12-10

One of the most unusual Volunteer Aviation Units in the country is located in San Francisco, California.

This is VAU 12-10, which was activated by 12 ND on 17 November, 1948.

The personnel in this unit represent all the categories of specialists employed by commercial airlines now operating from the San Francisco Municipal Airport, where the unit's regular drills are held.

Tripling in size in less than one year, VAU 12-10 is now composed of 103 officers, 4 warrants and 7 enlisted men.

Of these, 50% are airline-transport pilots with experience ranging from R4D's to C-97 Boeing *Stratocruisers*. Another 20% are airline flight engineers.

Other fields represented are electronics, communications, engineering, maintenance, aerology, flight dispatch, flight control, traffic and space control, maintenance planning, CAA regulations, legal, public information, training, administrative, supply and commissary experts, as well as inspectors and Link trainer instructors.

Interest in the unit's activities is high, and, despite the demands of commercial airline operation, average attendance for drills is 68%.

Cdr. Karl F. Lueder, who has been connected with airline operation since 1927, is CO of VAU 12-10. An Army veteran of World War I, he served as a NATS staff officer during World War II.

Since part of the mission of the Volunteer Reserve is to provide a large component of qualified or partially qualified transport personnel readily available for active duty in the event of an emergency, this unit has been designated as a VR Transport Unit.

MEN OF VAU 6-18 ENJOYED CRUISE AT MIAMI

VAU 1-5 (CIC) VOLUNTEERS; CO MATTISON AND I ND ADNR (AIR) WICKES ARE FRONT CENTER

COMMANDERY'S PURYEAR GREETS FADM. HALSEY AND RADM. MCQUISTON

AVIATION COMMANDERY MEMBERS WITH VADM. DURGIN AND CAPT. KANE

Commandery Has Annual Meeting

On 21 October 1949, the Aviation Commandery of the Naval Order of the United States held its twenty-first annual meeting at the Union Club in New York City.

Vice Admiral Calvin T. Durgin, Deputy Chief of Naval Operations (Air), was the principal speaker of the evening and Rear Admiral Harold B. Miller (Ret.) served as toastmaster.

Among the many ranking officers of the Navy, who were guests at the meeting, were Fleet Admiral W. F. Halsey, wartime commander of the Third Fleet, and Rear Admiral I. M. McQuiston, Advisor to DCNO(Air) for Naval Reserve.

During the meeting the following officers were elected for 1950: Commander—Seymour Dribben; Vice Commander—Joseph H. Schenck; Recorder—Alexander B. Lyon, Jr.; Treasurer—W. Brewster Winton; Registrar—Loren Berry; Historian—W. Bown Adams; Judge Advocate—John A. B. Coleman, Jr.; Chaplain—Rev. Father Joseph T. O'Callahan.

Members of the General Council for 1950 include: Albert F. Rice, Chairman; Robert Sealy, Jr., Vice Chairman; P. T. Stonemetz; S. P. Mahoney; Charles Dickson; W. C. Anderson; Ralph Draper; Barney Capehart; and C. Clark Bucknam.

VAU 6-18 Cashes In On Cruise

Volunteer Aviation Unit 6-18, Sarasota, Florida, is now cashing dividends in increased interest as a result of the unit's two weeks active duty at NAS MIAMI.

During this cruise the Sarasota Volunteer Reservists were assigned to jobs at the air station where they could utilize both their Navy and their civilian experience. The fliers exercised their wings and all officers and men brushed up on the latest operational procedures.

Highlight of the cruise was a flight to Guantanamo Bay, where all hands visited the naval air station.

On the recreational side, the Volunteers made full use of the excellent facilities of the "O", Chief's and Enlisted Men's Clubs at the station and often trekked to the Miami beaches after working hours.

Officers were quartered in the BOQ at Opa Locka and the men were housed in Navy barracks on the station. Several of the group took their families with them and obtained quarters off the government reservation.

Nineteen officers and men, led by CO Captain Thomas Durfee, made the cruise. They reported that Reservists at NAS MIAMI were most cooperative and did everything possible to make the cruise a success.

Included in the group from Sarasota were: Captain Durfee; LCdr. W. F. Evans; LCdr. J. A. Murphy; LCdr. F. W. Johnston; Lt. (jg) D. C. Ball; Lt. (jg) R. R. Sheppard; Mach. G. Amusco (E1); Carp. E. J. Root (CEC); L. J. Ruby DCWC; G. B. Searson, Jr., ALC; H. F. Vollberg AMC; J. L. Cardwell END1; M. R. Penney GM1; T. Dufree, Jr., MMR2; F. C. Schafer AMS2; E. A. Allen EM3; R. T. Catlett MML3; E. C. Smith MA3; and E. T. Clarke SR.

VAU 12-10 RESERVES STAND AT ATTENTION DURING FIRST INSPECTION

VAU 6-18 OFFICERS CHECK FINAL PLANS BEFORE GUANTANAMO FLIGHT

A Naval Air Station Is Born

THE BIRTH of a Naval Air Station is a grim experience and NAS LINCOLN's was no exception.

When Commander L. S. Melsom, the CO, and three officers arrived in the midst of a sub-zero Nebraska snow storm to start the operation at Lincoln's Municipal Field, they found a bleak scene. Aside from the raging weather, the NAS buildings, long abandoned by the Army, were in a state of maximum disrepair and the equipment was at a minimum, in fact at 0.0.

That was on 26 November 1948—the eve of Nebraska's four-month snow storm—the worst winter in 62 years.

Now little more than a year later, NAS LINCOLN stands as a proud addition to the Naval Air Reserve chain of 27 stations and units. Rejuvenated, beautified, modernized, it is operating in high gear and still growing. But it took plenty of back-breaking labor and the combined efforts of officers and men, active duty and Organized Reservists alike, to bring the station to its present state.

Back in 1948, with all signs pointing to a rugged future, Commander Melsom and his original handful of officers kept their overcoats on and immediately went to work. First they had to recruit help. Setting up headquarters in the Navy Recruiting Office in downtown Lincoln, they hired civilians and on 8 December actually began enlisting stationkeeper personnel. During the first two days the office was open, they had 400 applicants.

Next came the matter of emergency, stopgap repairs on the main NAS building. Broken windows were replaced; doors were hung; holes were patched; and a coal stove to keep the temperature just a little above freezing was installed.

On 15 December 1948, NAS LINCOLN was formally commissioned and the colors were two-blocked atop the administration building for the first time. Now the Reserves were ready to go to work on construction and major repairs.

But first they had to line up additional active duty personnel. Recruiting teams borrowed a truck and visited local universities and colleges. Newspapers and radio stations were contacted. The Naval Air Reserve Training program was explained to businessmen, civic groups and to anyone else who would listen. In short, Nebraska's new Air Navy made friends—that is with all but the weather.

As the procurement of personnel progressed, the officers and men got down to refitting the station. All hands turned to with a will. Chiefs and white hats alike, who had returned to active duty as specialists, served as general laborers. Mechanics and pharmacists mates swung paint brushes; yeomen and radiomen installed glass and repaired plumbing; ordnancemen and aerologists went to work with hammers and saw. Snow shovelers got the best workout of all.

CO MELSOM (TAN COAT) AND THESE HARDY RESERVES PIONEERED THE BUILDING OF NAS LINCOLN

Painting and patching stretched into weeks of hard monotonous work. Supplies arrived that couldn't be stored at the station. Narcotics were placed in a downtown bank for safekeeping. The supply of medical alcohol was escorted to a hotel safe by a group of half-frozen, self-appointed guards, who groaned in unison as the lock snapped.

Twice during that early period, all hands were mustered in town, having found it impossible to negotiate eight miles of highway covered with snow drifts of up to 10 feet.

On 8 January 1949, a big moment arrived. It arrived in the form of an SNB, ferried in from Spokane. That was the first plane attached to NAS LINCOLN. And, true to the short tradition of the winter-born station, it landed in a blinding snowstorm and was met by plane handlers on ice skates. But it was progress anyway.

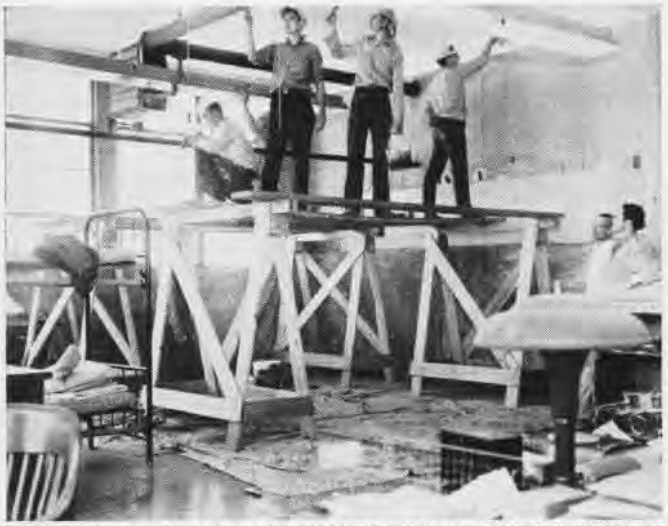
Two months later, the station received its first service type planes—two F6F *Hellcat* fighters. That was on 12 March. The sun was shining that day. Things were looking brighter.

Commissioning ceremonies for the Organized Reserve air group, CVEG-85, were held on 2 April. On 22 April, two squadrons and the air group staff came aboard for their first weekend drill. At that time, the Organized strength consisted of 41 officers, including 32 pilots and 89 enlisted men.

Now the O. R. on board count has grown to 75 officers, including 49 pilots, and 186 enlisted men.

NAS WAS COMMISSIONED ON 15 DECEMBER 1948

THE 'AD' BUILDING LOOKS DIFFERENT TODAY



'OPERATION PAINTBRUSH' GOT PRIORITY WITH ALL HANDS TURNING TO

LIKES AND WHITTED WORKED ON ICE SKATES DURING THE BIG FREEZE

LCDR. JAMES A. SEYBERT of Ottumwa, Iowa, who holds three Air Medals for downing six Jap planes, and a Presidential Unit Citation, was appointed CO of CVEG-85. Lt. W. O. McDowell, who was awarded the Navy Cross for sinking a Jap cruiser and who holds three Air Medals and a Unit Citation, was named CO of VA-85-E, while Lt. James E. Roddy, who holds eight Air Medals, two DFC's and a Presidential Unit Citation, was given command of VF-85-E.

Under the leadership of these men, the Organized Reservists were welded into a combat-ready team.

During its two weeks cruise in August, the organization and training of CVEG-85 reached a new high. Sorties were flown on bombing and strafing runs. Fighters practised air-to-air gunnery with target sleeves. Pilots flew an average of 60 hours and some even achieved 77 hours. Enlisted personnel provided outstanding support.

Since then, the air group has participated in eight air shows over various Nebraska towns as part of regular pilot training. Reservists also flew "cover" for the *Constitution,* when it was flown to Lincoln for the station open house ceremonies.

Today, NAS LINCOLN is busy streamlining Organized Reserve training operations under the new set-up, whereby its air group has been converted into an air wing and component squadrons. The station is driving towards filling the almost 100% increase in Organized Reserve billets it received in the reorganization.

Flying Leathernecks shared in the growth of NAS LINCOLN. On 1 June 1949, a Marine Air Detachment was commissioned at Lincoln with Lt. Col. E. V. Finn as Detachment Commander. In a month and a half, the 38-member unit was filled.

On 1 July, VMF-113, famed wartime Marine fighting squadron, was re-commissioned at Lincoln. Now there are 30 pilot, 7 ground officer and 110 enlisted Organized Marine Reservists attached to *The Whistling Devils* outfit.

Captain Taylor N. Withrow, director of Nebraska airports with the State Department of Aeronautics, was named skipper of VMF-113 and has done much to bring it to fighting strength.

Some of the squadron members are seasoned combat veterans, like Captain Emil Skocpol, pilot and author of a recent story in Collier's magazine entitled "I Was Run Over by a Carrier." Others, like Private Alois A. Slepicka, 17-year old regent scholarship student at the University of Nebraska have had no previous military experience.

Coming out on alternate weekends, the Flying Marines use station F6F's in their training missions. At present they are gearing their efforts for the annual Marine Air Reserve combat-training maneuvers to be held next August at El Toro.

So today—having conquered the grim past when the snow drifted in through the broken doors, having produced a modern, well-equipped plant by their own efforts, having developed efficient operations all along the line—the Naval Air Reservists in the great Midwest are insuring the peace and securing their own future at NAS LINCOLN.

AT FIRST RESERVISTS HAD TO SNATCH THEIR SNACKS AS THEY COULD

BUT TODAY THEY EAT IN STYLE AT THEIR MODERN SHIP'S SERVICE

Lts. Olson, Rogers, Graf and LCdr. Spurgin were the first Organized officers to report

On 22 April 1949, the first Organized Reserve muster was held at NAS LINCOLN—these pilots, ground officers and aviation specialists were on hand to get the program underway

LINCOLNITES LICKED SNOW AND ICE TO BUILD NAS

Soon operations were going in full swing and Air Reservists like the ordnancemen shown here were working together as a real team

And pilots like McClure, Cherry, Hall, Dawson, Thorne, Bartek, Haas and Maschka and Roddy (*front*) were piling up new records

Meanwhile VMF-113 was commissioned—CO Withrow was congratulated by Lt. Col. Finn

At the first drill, these 33 Marine Organized Air Reservists turned out—today the Marine fighting squadron has 124 active members, all of whom are ready for any emergency

THE CREW BEHIND THE KD

TARGET aircraft are tricky—both to shoot at and to operate. All naval warships have trained their guns on the little red and white radio-controlled jobs, about one-third the size of normal aircraft. The marksmen have found them elusive and realistic targets capable of giving a real work-out in advanced gunnery training.

But few watchers and admirers of these pilotless aircraft have much of an idea of the amount of skill and training concentrated in the personnel who operate them. They get that training at the Target Aircraft School (Class C), located at the Naval Air Technical Training Unit, NAS El Centro, California.

Both officers and enlisted rates go to school at this activity. Each fleet operating unit consists of one officer pilot, one ADC, one AD, one AM, one AT, and two AA or AN. Such a group constitutes a class at the Target Aircraft School for a period of six weeks. Each rate receives training in his specialty and training to operate as a team or unit smoothly and efficiently.

When a class enters the school, it is given one new aircraft to set up and operate. Each class must build up, overhaul, repair, cover and dope the rest of the aircraft it will operate.

The metalsmiths overhaul, straighten and weld the aircraft frames; the mechanics overhaul and adjust all engines, carburetors and ignition systems; the electronicsman checks, adjusts and repairs the transmitters, receivers and servos. Fabric and dope work and the parachute repairs and packing are the province of the airmen, while the officer pilot learns administration, supplies, and practical work in all of the school shops.

The first two weeks are spent in the shops, getting the unit's aircraft ready for flight. Then come flight operations, with the pilot learning to fly the craft and the rest of the unit working on preparation, trouble shooting, field repairs, and recovery procedure.

F. K. HOLT, AM2 FIRES CATAPULT AND PILOT R. G. DERUSSY CONTROLS AS TDD-2 STARTS OFF

A group starts with the slower TDD-3, which has a 20-horsepower engine, and proceeds through the TDD-4, KDR-2, KD3G-1, KDG-2 and KD2R-2. Instruction also is given in 60-hp four-cylinder engines and in pulsejet engines.

While these target pilotless aircraft are small, their relative speed and maneuverability are amazing. In air to air work, fighter pilots are finding that unless they can fire on the first pass, they will have to wait until the target aircraft reverses its course before they can get in another run.

And just as the target aircraft tax the skill of those who try to shoot them down, so do they demand plenty of aeronautical experience on the part of the men who keep them in action. Since the P/A's are mass produced, students are finding that it takes lots of work and know-how to perfect each target for satisfactory flight.

Some aviation personnel have the false idea that being assigned to a KD unit means being pushed out of naval aviation. Actually, operation of KD aircraft, if it is to be conducted successfully, requires a knowledge of aeronautical engineering beyond that necessary in the maintenance of regular aircraft. Students in the Target Aircraft School get an excellent review of principles that are highly needed for a successful career in naval aviation. After all, the target planes don't take off and fly themselves.

WEBER, WILLIAMS, MURPHY DOCTOR A DRONE

McCOLLUM AND THOMAS WORK ON A DOPE JOB

BACK HOME AGAIN AFTER SUCCESSFUL FLIGHT

LETTERS

SIRS:

In your November issue (pg. 10) you show a picture of a seaplane converted for hospital rescue use. The man sitting in the pilot's seat to the left is John A. Laird, then a Lt. (jg). He is now a lawyer in Newark, N. J. at 17 Academy St.

Unfortunately, he cannot remember the doctor's name or the other occupant in the plane, but he recalls the incident well. The "victim" was a seaman whom they bandaged up to look the part and it was simply to show the possibility of using a seaplane for rescue work where the accident occurred that was too far away from the air station to use the sea sled.

HAROLD J. BROWNE
40 LAFAYETTE AVE.
EAST ORANGE, N. J.

¶ The NEWS also received a letter from LCdr. Ralph M. James of Davenport, Iowa, who said the doctor was Dr. W. C. Hausheer, the plane an old Curtiss F boat. He identified the man on the starboard as a mechanic and the pilot as Ens. Grant Goodrich. James believed the picture was posed, as there was no work for a hospital plane in those days and no hospitals close enough to which to fly a patient.

SIRS:

I was released to inactive duty 26 August and would like very much to keep abreast of developments through NAVAL AVIATION NEWS. I would like to subscribe to the issue dating back to September copy if possible.

ROBERT S. DONOVAN, ENS.
210 HAWTHORNE ST.
MALDEN, MASS.

¶ NANews has received several such letters from Reserve pilots relensed to inactive duty in the current cutbacks. We take this opportunity to remind Reserves who will be dropped in future months that they can keep up with their old outfits and naval aviation in general by sending $2 for a year's subscription to Superintendent of Documents, Government Printing Office, Washington 25, D. C.

SIRS:

It was especially interesting to read your write-up on "Movie Tells Carrier Story" about the film "Task Force" in the October issue. But unless I'm mistaken, I believe you gave honors to the *Boxer* when you should have mentioned the USS *Antietam*.

That big "36" painted on her flight deck is hard to miss in the flight deck scene and the CIC, flag plot and wardroom sure do look like my former home, the *"Tietam*.

Unless there has been a mass transfer of personnel, I believe you will find a number of the interiot shots came from CV-36. Among these were such *Antietam* sailors as Cdr. Lewellyn, Lt. Palmer, Lt. (jg) Jorgansen, Lt. (jg) Newhouse and one with a 'speaking part,' LCdr. McClintock.

Could be that the *Boxer* also was included, but I believe the majority of the scenes were taken aboard the *Antietam*.

ALBERT L. STELL, LT. (JG)
NAVAL GUIDED MISSILE TRAINING UNIT
BUREAU OF STANDARDS, WASHINGTON, D.C.

¶ It took half a dozen phone calls to prove Lt. Stell was correct. The *Boxer* was used too. Our congratulations to the *Antietam* for helping make a fine movie.

SIRS:

Why not print a full size photo, suitable for framing, of a different naval aircraft, both past and present types, every month in the NAVAL AVIATION NEWS?

I know many fellows who would like to have such pictures but have no source for them.

Perhaps too, on the back side of the picture you could give some data and information about it.

Lt. (jg) DEWEY R. BUTT.
FASRON-153
NAS COLUMBUS, OHIO

¶ Budgets being what they are, the best we can manage, outside of an occasional front cover, are the half-page recognition photos on one of the inside covers.

SIRS:

An operational hazard frequently rears its ugly head due to the weather or malfunction and such, but NAS MINNEAPOLIS has come up with a new one—bear trouble.

A PV pilot, after warm-up at the Duluth auxiliary field, raised his head out of the cockpit, took hold of his throttles, checked the air for planes, checked the runway and blinked his eyes and then checked again.

To his astonishment, a mother bruin and her two cubs were standing in the middle of the runway watching the show. It was necessary to call the gas truck to chase the curious bear and her brood clear of the runway before he could take off.

CVG-93 also had bear trouble at Bemidji during its cruise there. A member of the shore patrol was checking events at the police station when a frantic call was received from a housewife of that city.

Rushing to the scene, the SP found a bear in her back yard. It took a great deal of persuasion to get the bear into the suburbs. The SP let loose with a couple of shots which seemingly took no effect. The bruin was seen last lumbering off into the brush with a look of disdain on its 'bear' face, and an expression which seemingly meant, "That for you, sailor!"

GEORGE F. HOPPE, CDR.
PIO, NAS MINNEAPOLIS.

● RECOGNITION QUIZ

Top—AD-3W Skyraider. Plastic radome houses this antisubmarine plane's radar antenna.

Center—Martin XB-51 three-jet bomber for the Air Force. Third jet is in fuselage near the tail with airscoop in front of vertical stabilizer.

Lower—F7U Navy fighter, the tailless twin-jet by Chance Vought. Two rudders and stabilizers give directional stability.

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● THE COVER

Three planes from NAS Oakland fly over San Francisco bay in this month's cover. Directly behind the F4U is famed Alcatraz Island and Golden Gate bridge hides in the fog in the distance, with S.F. on the left. Piloting the FJ-1, newly-arrived at the Reserve station, is LCdr. Harold F. Greene, flight officer at Oakland. LCdr. Harold R. "Buck" Mazza, assistant type training officer, flew the Hellcat and Lt. W. A. "Jake" Loudin, ex-RCAF flier, the F4U. Mazza is one of the Navy's most decorated aviators with four Navy Crosses, a Silver Star, DFC and four air medals.

● BACK COVER

P2V-2 making JATO take-off from St. Louis municipal airport during Air Age Exhibition. Photo courtesy McDonnell Aircraft Corp.

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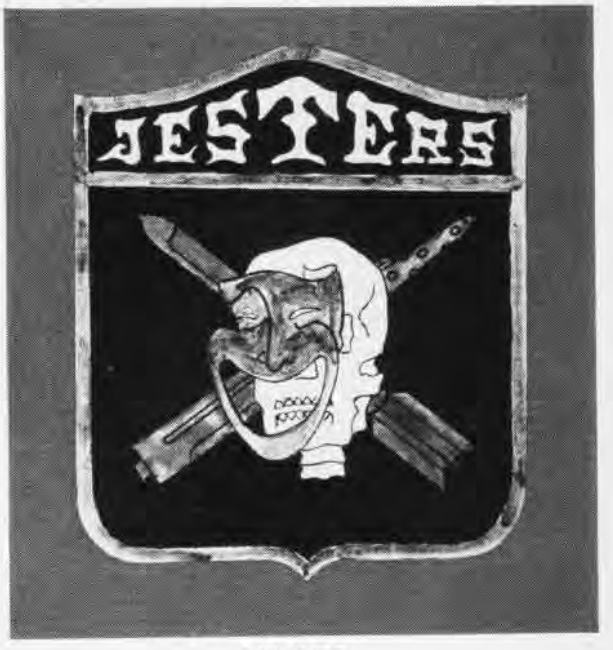
SQUADRON INSIGNIA

TOTEM poles, slide rules and death's heads feature this month's squadron insignia. Training squadron Eight at the Naval Academy has the slide rule, complete with red flames indicating their competence with the device, so much used in training. CVEG-84, based at New Orleans Reserve station, has a Confederate cavalryman riding a bomb, drawn by an artist whose brother, a member of the group, was killed in a training crash. VF-173's insigne has the jester's mask and death's head while NARTU Seattle has the symbolic, colorful totem pole.

CVEG-84

VN-8

NARTU Seattle



VF-173

NEW HORIZONS ARE YOURS

TO COLLEGE men, the Navy again offers a happy new year's take-off for adventure—for travel—for flight training—and for a naval officer's commission. Make a New Year's resolution. Resolve to write today to find out how you too may become a naval aviator. The address to write for this data is NAVCAD, Washington 25, D. C.