NAVAL AVIATION

NEWS

Navy Gets A Jet
Seagoing Civilians
Squadron History

February 1948

RESERVE EDITION

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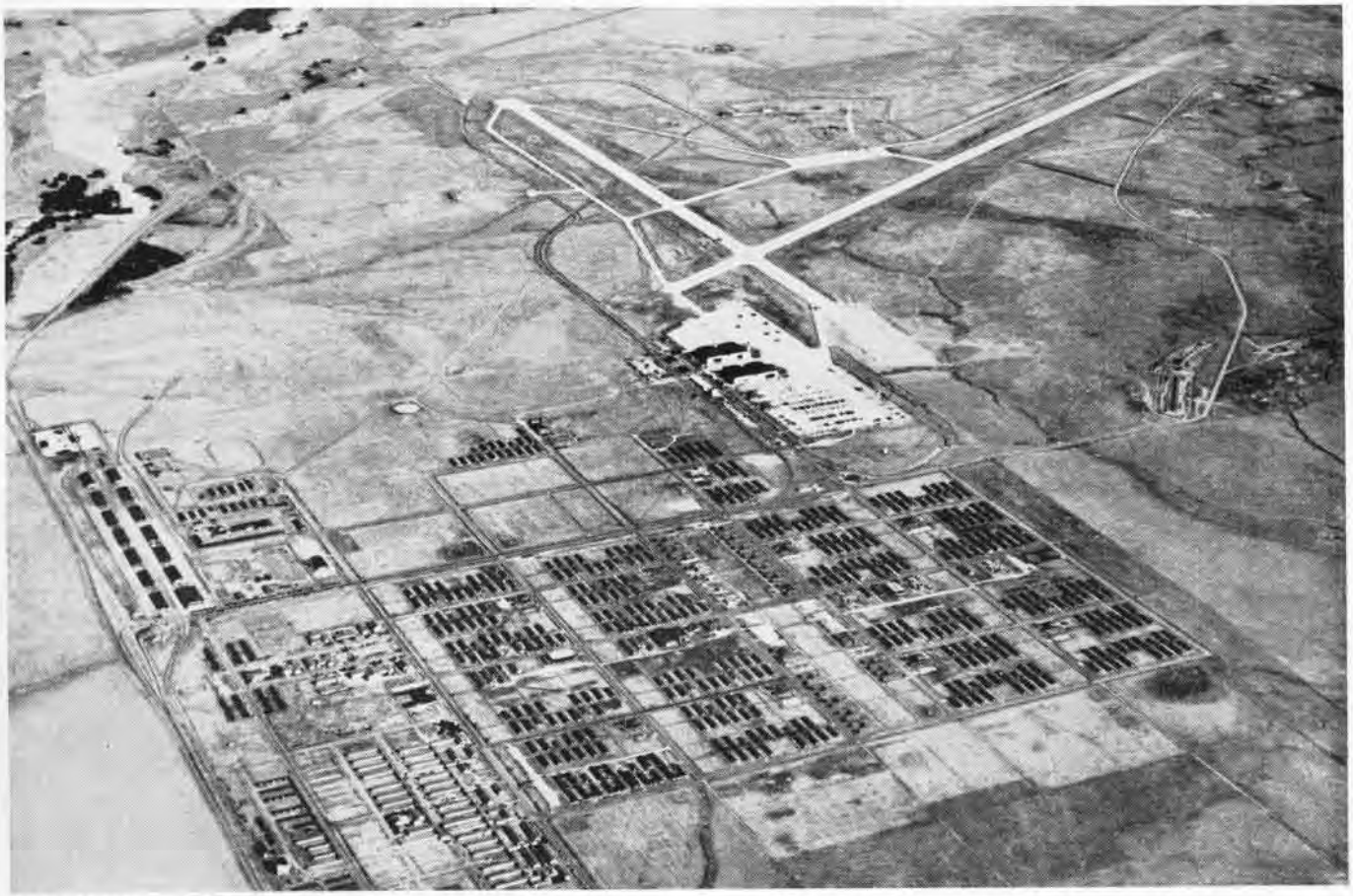
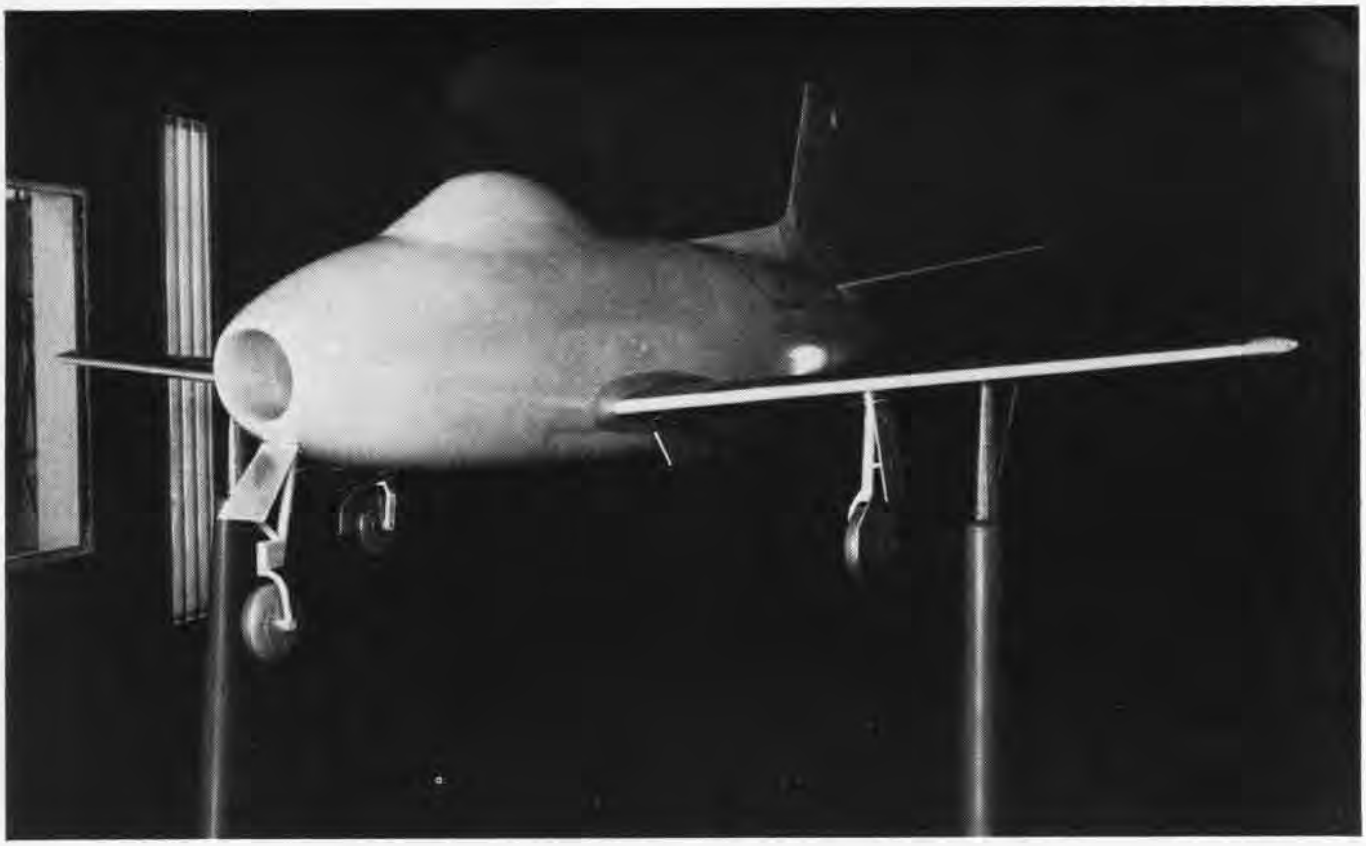


HIGHER AND HIGHER

Few naval aviators will recognize the air station above, or maybe even the one at the bottom. The former is the Navy's highest. *Answers are on the last page.*



A PLANE IS BORN

THIS IS the story of a Navy jet fighter, the North American FJ-1, and of how it came to be. In order to produce a new airplane, a great deal of planning, time, money and hard work must be expended.

It is an arduous process, and poker-table chatter notwithstanding, it takes more than a sharp knife for cutting red-tape, to produce a new airplane.

Need is first predicted in the operational field. One might say the FJ-1 was initiated by the aerial war over Germany. For it was there in 1944 that the first German jets began to appear in combat. This information was relayed to BUAER and a little applied logic told the Navy's planners that Japan would have them too, if the war continued. The Navy had to be prepared for that eventuality. So, Military Requirements and BUAER decided some carrier jets were needed.

That is the way it all begins: The need develops or is predictable. Planning and BUAER start the wheels turning. From there on in, it is a tailoring process. For a suit of armor must be tailor-made.

Into this new plane, if a jet fighter, will go 45,000 separate pieces, not including rivets. A multi-engined plane requires much more. Paper work flows in a veritable river. There will be some 8,000 individual drawings for a fighter and each one will have 30 copies made from it—44 acres of blueprints. There will be 5 or 6 filing cabinets full of correspondence before the first plane arrives with the fleet. Work on the plane will run into millions of man-hours.

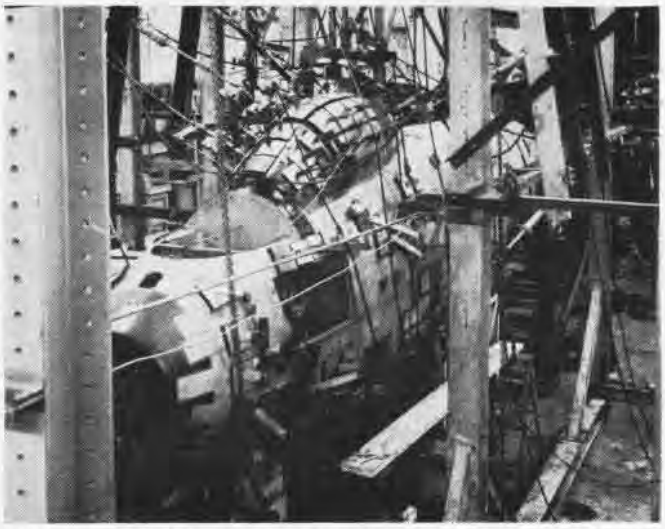
Navy pilots will be flying the new fighter operationally some three years after work begins.

So, it came to pass in late 1944, that a request for jet proposals and studies went out to several airframe manufacturers. Up to that time only one all-jet plane contract had been let—for the XFD-1 with McDonnell.

This request for jet proposals was general so far as exact specifications desired were concerned. It left the manufacturer plenty of leeway for originality. It was restrictive only insofar as any carrier configuration must meet size and weight specifications for successful fleet operation.

Out of this design competition came a considerable number of proposals. Technical desks of BUAER went over all of these submitted very carefully, then chose the ones that appeared to hold the most promise. Among those received were the XF2D, XF6U and the XFJ-1. The FJ-1 was one of three designs submitted by North American. The FJ-1 configuration was accepted with one eye on its predicted performance and the other on the engine to be used for power.

FJ'S ON THE FINAL ASSEMBLY LINE SHOW MODERN PRODUCTION METHODS



OUTWARD FORCE IS EXERTED ON CANOPY DURING STATIC TEST OF PLANE

Navy Chose Jet Planes To Cover Engine Field

THE NAVY could not have its whole jet fighter program dependent upon one engine type. So, the contracts were spread around, pretty well covering the whole jet power plant field.

Of the Navy jets flying today, the F2H and F6U use the 24-C. The F9F is powered by the British Nene; the FH-1 is powered by two 19-XB's while the FJ-1 uses the TG-180.

Contract authorization was signed by the Chief of BUAER for three XFJ-1 (experimental models) airplanes on 1 January, 1945. The first of the three planes was scheduled to fly in December of 1945 under the wartime program.

This initiating contract described the articles to be furnished with their prices, a delivery schedule plus a description of articles and applicable specifications. It included a number of restrictive clauses, such as a demonstration and trials clause, a final acceptance clause, a guarantee clause, a correction of defects clause, a change clause, a weight control clause, title loss or damage clause, payments clause *ad infinitum*. Changes in the contract can be made by agreement.

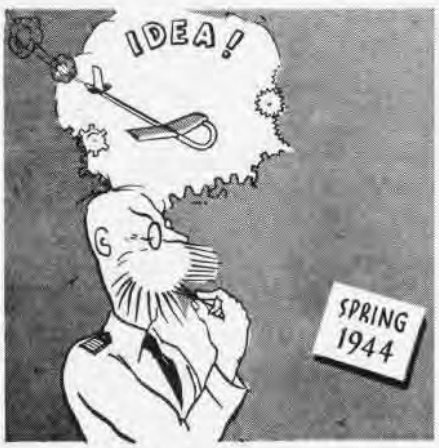
Once the contract was signed, preliminary work and design began on practically all phases of the XFJ project. Fabrication was started on the flight articles; drawings began to come in; models began taking shape; and aerodynamic research on the design was started. Number one project was the construction of the "mock-up."

An aircraft mock-up, as the name implies, is a dummy model of any particular airplane. Fabricated principally from plywood and full-scale in size, it incorporates sufficient members to indicate the main structural components.

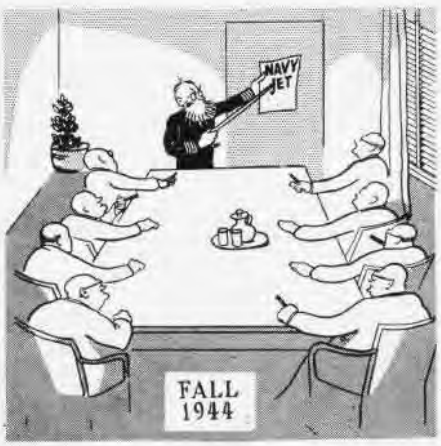
Armament, cockpit arrangement, engine installation, catapult hook, landing gear, arresting hook provisions and radio equipment are simulated in considerable detail. As a matter of fact, the actual units are usually installed. In the case of radio gear, etc., if the unit is not installed, at least the container is fitted into the mock-up.

THE XFJ mock-up was rushed through and completed in late March of 1945. In early April it was inspected by representatives of the various divisions of BUAER. Oft times a plane that appears excellent in all respects on the drawing board has a considerable number of minor flaws that show up when it becomes an integrated whole. The inspection serves to bring out these defects and clear the way for correcting them.

Examples of the type of change that results from a mock-up inspection are two that came out of the XFJ-1 inspection. The board recommended that control handles be re-shaped to indicate the components they operate, i.e., flap handle shaped like a miniature flap, landing gear handle constructed in the shape of a wheel, etc. Also, it was recom-

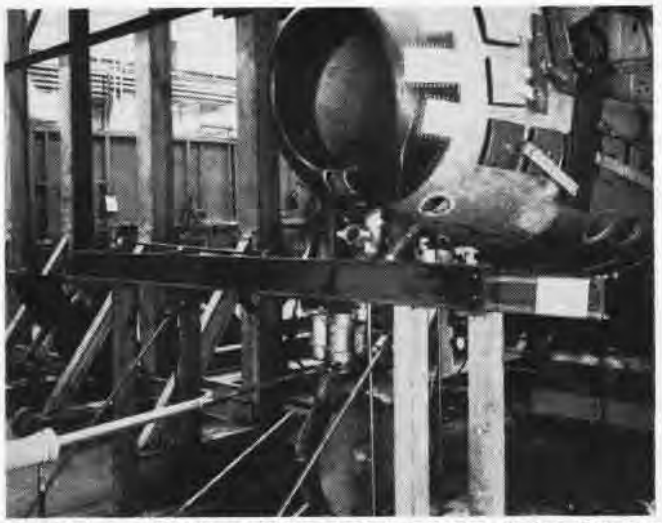


1 **In 1944** Navy planners decided to emphasize and enlarge jet program.



2 **A request** for jet proposals was received by manufacturers in fall, '44.

3 **Out of** the design competition came such planes as XF2D, XF6U, XFJ-1.



STRENGTH OF AUXILIARY LANDING GEAR IS CHECKED BY THIS TOW TEST

A LOT OF PAPER IN BLUEPRINT FORM IS INVOLVED IN A JET CONTRACT

mended that a separate manual hydraulic pump within the airplane be provided for raising and lowering the nose wheel —the handle to be loose equipment. The "detail specification" was amended to incorporate these changes.

The detail specification is a document defining the material, processes, and equipment to be employed in the building of the aircraft. It specifies the overall dimensions, weight, performance and strength to be obtained in the completed airplane. In other words, this document states how high and fast the plane will fly, how much it will weigh and even states precisely what type of material will be used in construction.

This sounds as though the Navy is a harsh task-master. In a way, that is true; BuAer demands the best. However, the detail specifications aren't just a group of optimistic numbers pulled out of the air. They are, rather, the result of a number of conferences between technical divisions of BuAer, Military Requirements and the contractor's representatives. They are based on a certain knowledge of what can be produced. As usual, the desired—perfection—and what can be done under prevailing conditions and with available material, results in a satisfactory and workable compromise. The detail specs on the XFJ asked for only the best that could be produced back in 1944. Even more would be demanded today!

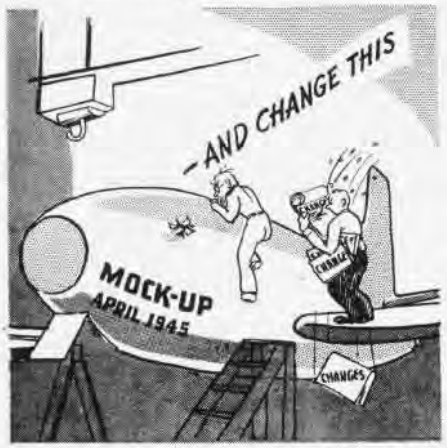
After acceptance of the mock-up and revisions to the specs, North American proceeded with formal design of the projected airplane, fairly confident that no further major re-design would be required before the plane was finished.

Oh, how the paper rolls in, rolls in. In accordance with BuAer policy, the XFJ-1 contract required certain design data and drawings to be submitted for examination before the design was released and manufacture authorized. The first drawings prepared were essentially design layouts, not detailed nor to exact scale. Upon release of these drawings by BuAer, the BARR engineering office examined all further detail drawings developed by the contractor and these when found satisfactory were approved for manufacture.

Models are not always blonde or toys. Inasmuch as the XFJ was a brand new design, a great deal of aerodynamic data had to be gathered on it. Models were used to gather these data. A one-quarter scale model of the plane was built and tested in the North American wind tunnel. The results were used to advantage in ascertaining the most desirable location for the wing-tip fuel tanks and in designing the engine air intake duct.

This information was also used in predicting the overall performance and control characteristics of the aircraft. Drawings and data were also furnished to BuAer for the construction of a free-spinning wind tunnel model which was subsequently completed and tested with satisfactory results. As a whole the aerodynamic and spin characteristics of the plane based on the model test results looked excellent.

Another important project begun early was the "dead-load" model. The dead-load only slightly resembled the actual XFJ airplane and was constructed from iron shapes of the type used in commercial building construction. However, the landing gear, catapulting and arresting provisions and the flaps installed on this model were exact duplicates.



4 **BuAer** technical representatives inspected "mock-up" in April 1945.

5 **After** mock-up inspection work went ahead on all phases of XFJ.

6 **Airframe** manufacturer depends on many other people for materials

IT IS A LONG ROAD BUT AT THE END THERE IS GAS AND THEN—FLIGHT

Much Research Goes Into Producing New Airplanes

AFTER being finished by the contractor, the dead-load was shipped to NAMU in Philadelphia where tests were completed. NAMU tests proved these components entirely satisfactory, and it is to be expected that the catapulting and arresting qualities of the actual airplane will be similarly good.

Another model that went to the Navy for studies was a cockpit mock-up constructed by the contractor and shipped to BUAER.

Design data for the engine installation were obtained by the actual building of that portion of the body enclosing the engine and additional structure extending fore and aft to support the incoming air duct and exhaust tail cone. This installation was instrumented and an extensive test program inaugurated.

Another small-fry XFJ that did yeoman work for the future FJ was the "static-test" model. The static-test model was structurally identical to the plane itself, although it did not have the engine, instruments or equipment installed.

A fighter plane is built to withstand all the stresses expected to be encountered in combat operation, plus an additional safety factor. A fighter must be capable of withstanding repeated G pullout without experiencing any structural damage. This is "design strength." Apply the safety factor of 1.5 times design strength and design ultimate is obtained. A plane must be able to experience design loads without yielding or permanently deforming; it may bend or stretch somewhat at loads greater than 1.15 times design loads and may break at loads not less than 1.5 times design loads. Loads are simulated on the static-test model by sandbagging the wings, lifting the loaded plane with suction cups on the wing surfaces and by twisting the structure in a king-size mechanical vise.

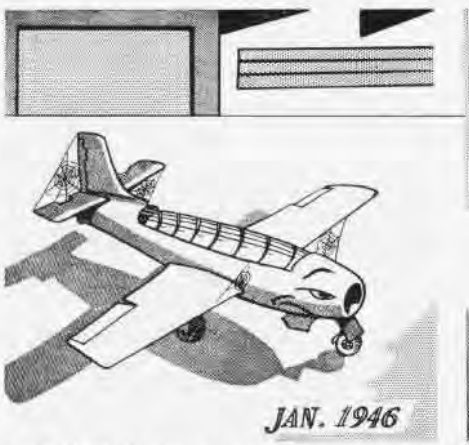
ALL THE time models and planes are taking shape there are a multitude of other procurement and assembly operations underway. It is an involved process throughout. The contractor is dependent upon a huge number of subcontractors, upon the government for government-furnished equipment and upon a few acts of Providence. Strikes, shortages of critical materials in other industries, changes of standard government-furnished equipment, all can hold up a contract. It is never just a question of a manufacturer building an airplane from the stockpile of material he has in his own back lot. Just think of the nuts and bolts that have to come from the nut and bolt man! And government-furnished equipment—GFE—represents a large chunk of any airplane built for the Navy.

What about GFE and why? It has been the practice of the Navy for many years to provide the airframe contractor with certain highly specialized major items of equipment. This includes engines, propellers, landing gear wheels, radio, instruments and, of course, armament.

These items are developed by specialist companies, and normally are used on several different airplane types. There are many advantages in this arrangement. One is maximum standardization in major equipment items, resulting in simplified training and maintenance. Another is controlled allocation to various contractors in accordance with the current requirements of the Navy. If three airframe manufacturers were using one type of engine and obtaining their engines direct from the engine manufacturer, chances are that most engines would go to the company placing its order first, rather than to the company building the most urgently needed airplane. Finally, the development of these major items of equipment is so costly that it is virtually essential for the government to underwrite it.

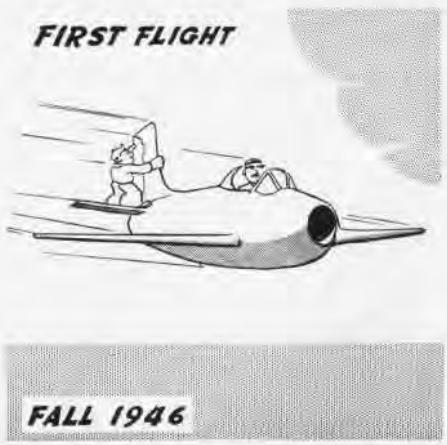
Now for a few statistics on cost—and it ain't cheap, Jack! The cost of producing three experimental fighters runs around $232 a pound for contractor-furnished material. And there are some 6000 pounds of contractor's material in an average jet fighter. The rest of the plane's weight is made up of GFE, which is no small potatoes either.

Order 30 production models plus the three experimental planes and cost drops to about $72 a contractor pound. Raise the order to 100 production models with three experimentals and cost drops to $46 a pound. If you want a bargain, order 500 production models. Then the price drops to $14 a pound. You can buy silver for about that.



7 **First** flight of the plane was delayed due to an engine shortage

8 **Undergoing** taxi tests in mid '46 the XFJ-1 was stoked up and ready



9 **First** flight by contractor and the start of a stream of modifications.

ETCHED AGAINST THE SKYLINE THE XFJ FLIGHT ARTICLE PRESENTS SLEEK APPEARANCE THAT MARKS THE PRESENT DAY HIGH SPEED FIGHTER PLANE

For something over $4,000,000 one can buy three planes from the contractor—not including GFE. For 10 times this amount one can buy 500 planes—still not including cost of GFE. These figures are general, not specific.

TEMPUS FUGIT, and the first "X" model flew in September of 1946; the second flew in October of the same year, and the last of the three XFJ's flew in February, 1947.

After the contractor had flown the plane, a few additional revisions were made before the preliminary demonstration flights took place for the Navy at Muroc in summer of 1947.

Once the Navy had taken delivery of the first airplanes in October, 1947 they went to Patuxent NATC for the Board of Inspection and Survey trials.

Patuxent takes a "good airplane" from the manufacturer, sends it through the BIS trials and in from 12 to 18 months it comes out a "good Navy airplane."

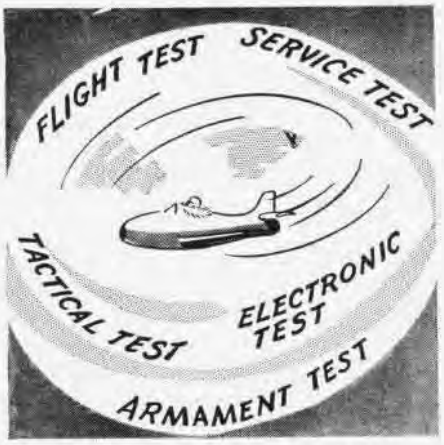
Usually a new plane goes through Patuxent and all the test phases before it is delivered to the fleet. These include flight test, electronics test, tactical test, armament test and service test. By the time it gets through these divisions it will be stamped "fleetworthy" and have enough modifications on it to test the skill of the most able statistician.

However, in the case of the FJ, as well as the rest of the Navy's jets, the plane is being delivered to the fleet concurrently with the BIS trials.

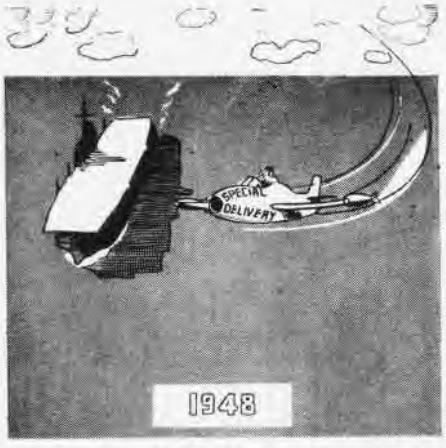
The reason for this is that Navy squadron personnel need jet experience badly. During the time Patuxent is working on the airplane, squadrons operating from shore bases under optimum conditions are familiarizing themselves in the operation of jets. When the plane is approved for carrier use, there will be personnel available to fly them aboard. Otherwise, jet carrier planes would be sitting on the beach waiting for personnel to take them aboard months after they were "okay for fleet."

The XFJ was coming along well enough that a Procurement directive for 30 production models was let in May of 1945. By the end of 1947 some 20 production airframes had been built, with 10 planes already assigned to Navy units, six at Patuxent, four to Carrier Air Group 5.

10 **The plane** was ready for demonstration before the Navy mid '47.



11 **The first** planes were arriving at Patuxent River for tests Oct. '47.



12 **Assigned** to Operating squadron in '47 FJ may go on CV's in 1948.

GRAMPAW PETTIBONE

An Orchid for NATS

One day last November a big Naval Air Transport Service R5D, on scheduled flight into Argentia, Newfoundland, was "in final" on GCA at an altitude of about 300 feet, when the plane commander discovered his rudders locked in a near neutral position. A quick check failed to reveal the trouble, and full strength on the rudder pedal yielded naught. Aileron and elevator controls were normal.

The NATS pilot elected to continue the approach rather than go back up into the overcast. A straight course was maintained by use of aileron control. The plane was lined up properly for the intended runway, which was clearly in sight, and the landing was completed without mishap. On the ground, the pilot kicked hard rudder. The action freed his rudder controls.

Thus a small cap from one of the fluorescent lights in the cockpit could have scored a blow against one of the world's outstanding aviation safety records. The cap apparently had jarred loose and fallen off during final approach, wedging itself between the deck and the elastic stop-nut on the rear of the vertical rudder pushrod, thereby locking the controls. With the episode long since aired throughout NATS, *that* gremlin won't appear again. Squadron engineers have seen to that.

The Naval Air Transport Service has just completed a full year of operation without a single passenger fatality. This includes both domestic and overseas operation. A glance at the figures below show how NATS has steadily improved its safety record despite the release of more than two-thirds of its experienced pilots to civilian life during the past two years.

PASSENGER FATALITIES PER 100,000,000 PASSENGER MILES FLOWN

1943—25	1945—3.9
1944— 8	1946—1.8
1947—0	

Grampaw Pettibone says:

Congratulations to the entire NATS organization on this wonderful record.

For those of you who like to roll the big figures around, here are a few more facts about NATS operations which sound like mighty purty music.

They have flown a total of 1,815,000,000 (yes, that's the right number of zeros) passenger miles in Douglas *Skymasters*, better known as the DC-4, and in Navy circles as the R5D, WITHOUT A SINGLE PASSENGER FATALITY.

The giant MARS flying boats have been operated on the vast over-water runs more than fifty-two million passenger miles without a single passenger fatality.

Now, hold on to your hats because here's one for the books!

The non-stop "Hotshot Flight," operated by NATS between Washington, D. C. and Moffett Field, California, six nights a week in both directions, completed every one of its scheduled flights in 1947 without a single cancellation.

Those in the know tell me that this record for dependability and reliability of service could not have been accomplished without the use of Ground Controlled Approach, and that NATS pilots practice GCA approaches on every landing, fair weather or foul, at fields where the necessary installations have been made.

I feel sure that this is one of the many reasons which have enabled NATS to move into the number one spot in the field of safety.

Again, CONGRATULATIONS, and keep up the good work.

Aerial Repair Man

During the take-off on a test flight the pilot of an R4D-3 noted that the port propeller only developed 2200 rpm in full low pitch, about 550 below normal. After throttling back to cruising settings and circling the field, he noted that the port propeller control was about 45 degrees further forward than the starboard control when the props were synchronized. At 800 feet just under a thin overcast, he decided to feather the port engine momentarily to see if this would free the prop governor which appeared to be sticking. At this time both engines were operating normally and the pilot was in the traffic circle just beyond the service runway.

After placing the port engine mixture control in the idle cut-off position, the pilot pressed the feathering button. Immediately thereafter while attempting to increase the manifold pressure and rpm on the starboard engine, the pilot noted that the rpm on the starboard engine was dropping rapidly. Since the propeller appeared to be feathering, he attempted to arrest this action by use of the starboard feathering button, but to no avail.

With the loss of power on both engines, the pilot attempted a dead stick landing on the nearest runway which was approximately cross wind. Gear and flaps were lowered but due to the loss of hydraulic pressure only half flaps were obtained. A steep "S" turn was made into the field resulting in excessive airspeed. The plane touched the runway about 4000 feet from the approach end and with no brake action available rolled another 2700 feet where it nosed up in a ravine beyond the runway.

The plane was carefully checked following the crash and no electrical short circuits were discovered. The plane's battery power was turned on and both feathering circuits were found to be operating normally. In view of the above the accident board is of the opinion that the pilot placed the port mixture control in idle cut-off position and then inadvertently pushed the starboard feathering button, thereby causing a complete loss of power from both engines.

Grampaw Pettibone says:

This is what I call a real Dilbert maneuver . . . and I'm not speaking of the accidental activation of the wrong feathering button. What I'm burnt up about is the pilot's decision, while on a test flight, to attempt to correct the mechanical difficulty by feathering a propeller at 800 feet rather than making a normal landing, and turning the plane back to the maintenance personnel for corrective action.

Take another look at the situation. Here's a fellow who's had trouble with his plane, but at the moment he's circling his home field with normal power on both engines. His altitude is 800 feet and he is just below the overcast. He's in no trouble at all if he simply uses plain ordinary horse-sense and lands the airplane, but not old Dilbert—he feels the urge to be an aerial repair man. This urge, plus improper feathering procedure, plus misjudging the subsequent emergency landing, add up to one mighty expensive airplane—completely wrecked. One less operating aircraft.

Attention TBM Pilots

The pilot of a TBM had completed four glide bombing runs in which his pull-outs appeared normal and during which he apparently experienced no unusual circumstances. He was experienced in this type of attack in the TBM and familiar with its operating restrictions.

On his fifth run part of the starboard wing and tail section left the plane at the pull-out altitude of approximately 2500 feet. The plane dove into the water out of control and all three occupants were killed.

The accident board is of the opinion that the pilot became too steep in his downwind approach and may have used elevator tab during the pull-out.

Grampaw Pettibone says:

This is the FORTY-EIGHTH accident of this nature in the *Avenger* type aircraft in the past thirty months. In almost every case there were no survivors. Surely this should indicate the necessity for observing the operational limits on this plane. As every Naval Aviator knows the TBM was not designed as a dive-bomber. It was designed to be used as a torpedo and horizontal bomber. As a result the maximum permissible speeds and "G" forces are considerably less than those applicable to any other currently operated carrier aircraft.

The safe limits for the operation of this plane are explained in Technical Order 49-45, and in Flight Safety Bulletin 3-47. If you intend to do anything other than straight and level flight in the TBM, read these limitations. MEMORIZE THEM. Then subtract a few knots from the top limit and save a "G" or two for the wife and kids. DON'T BE NUMBER 49!

This Will Kill You

While starting an R5D at night, the clear signal for starting number two engine was given the pilots. Inadvertently the co-pilot reached too far and instead of energizing and meshing number two engine, he hit the switch for the number one engine. The result was nearly tragic, in that the man holding the fire bottle was standing almost directly in the propeller arc of the number one engine and narrowly escaped injury when the engine was meshed.

Grampaw Pettibone says:

Sure the co-pilot made a mistake and the plane commander failed to check his error in reaching for the wrong switch. Both would have felt mighty bad had this lineman been killed. But, gee-whiz, fellows, don't take anything for granted. If you're the guy standing under one of the dead engines, it's your skull that's in danger of being split wide open should the pilot actuate the wrong switch. Play it safe—give all engines a wide berth during starting operations.

Slow Response on Wave-Off

The picture above shows that even old timers occasionally make serious mistakes when qualifying in new types. This F4U-4 was being flown by a pilot with 4,623 hours. He overshot the groove slightly and was not lined up with the deck. When the LSO gave him a wave off, he was slow in responding to the signal and the plane settled towards the deck in a nose high attitude. Full power was applied at very near the stalling speed, and torque caused the left wing to drop. The aircraft continued over the side of the ship and struck the water in a nose down inverted attitude.

Shoulder harness and *safety belt* were tight and functioned well and the pilot got clear of the wreckage, inflated his life jacket and was picked up a few minutes later by the plane guard destroyer.

Dear Grampaw Pettibone:

A man always hates to admit his errors, but you say confession is good for the soul, and what happened to me might help some other pilot avoid the same trouble, so here goes.

I took off one morning and was flying blind on the Atlanta range. I contacted the range station and requested permission to orient myself and make a let down; permission granted, I proceeded as directed. As I passed over the high cone I was directed to hold, and did. By the time I was cleared for final approach the weather was down below instrument minimums.

At that time I requested GCA. The request was granted. After passing over the low cone I switched to the GCA frequency and completed a successful GCA approach and landing. The complete let down took almost an hour and it was a relief to be on the deck, but that is where the catch came in. I relaxed too soon.

As I stepped out of the Link Trainer I slipped, fell and sprained my ankle. Result: four days flat on my back.

The lesson learned from this ironic accident is, no matter what you are flying, Link, *Corsair,* or transport, the hop isn't over until the plane is tied down and the pilot is in the ready room. Don't dope off, flying is a full time job.

/s/ 1st Lt., U.S.M.C.

P.S. I wonder if I am the only pilot injured in a Link Trainer crash.

Grampaw Pettibone says:

I can't say for sure, but you're certainly the first "Link Trainer casualty" that I have heard of.

Serial Numbers on RUDM's

Numerous activities are submitting Aircraft Accident Reports stating that an RUDM is to be submitted, but are not specifying the serial number of the RUDM as called for on form NAVAER 339 (Rev 11-45). The serial number is necessary in order to correlate the two reports in the bureau. If submission of the RUDM will be delayed, the RUDM serial number should be preassigned.

$75,000 Mistake

The skipper taxied out to take-off position in his F8F and checked his magnetos while the selector valve was on the auxiliary fuselage tank, assuring positive suction. Before manning the plane he had been informed that this tank had been almost completely emptied to reduce the load for field carrier landing practice.

After checking the mags, he failed to complete his check-off list and took off with the fuel selector valve on the nearly empty auxiliary tank. Just after becoming airborne, and with the wheels part way up, the engine stopped due to a loss of fuel suction. The C.O. made a belly landing and skidded approximately 1,000 feet to a stop. Unfortunately the auxiliary tank did not shear off on contact with the runway. Instead it burst into flames, and the aircraft was destroyed by fire. The pilot escaped with a sprained ankle received while jumping from the plane.

Grampaw Pettibone says:

DILBERT! Now what are you doing in that Lieutenant Commander's disguise.

Well, my red-faced friend, if it will make you feel any better, I'll tell you one that was even worse than that, though perhaps not quite so costly. (This, by the way, is your reward for that very frank and honest accident statement.)

Some years ago a particular fighter squadron had a regular epidemic of wheels-up landings. One day as the 18-plane outfit approached the field for a landing, the skipper picked up his mike and let loose with quite a spiel on the subject of what was going to happen to the next fellow who forgot his wheels. He then checked with the tower for landing clearance, peeled off, and landed without lowering his own!

Use the check-off list *every* time.

★ *THIS IS the third of a series of short sketches of squadrons in World War II, based on reports filed with Aviation History OCNO(Air).*

TORPEDO SQUADRON NINE

Squadron Pilots Gibson, Carter, Kirwin, Jean, Stetson and Collins launched the torpedoes that spelled the doom of the Japanese battleship, the *Yamato*

"IT WAS a record of which every man could be proud." These are the last words of VT-9's cruise book which covers the final round of that squadron in the Pacific. It is a statement of fact based on a record which is as arresting as the squadron's insigne — a squirrel astride two torpedoes, driving them as he holds a telescope to his eye.

The officers and men of VT-9 can never join in the famous lament, "And what did I see? I saw the sea." For those on the first tour of duty saw from the vantage point of airborne battle Marcus, Wake, Rabaul, Tarawa, Kwajalein, Truk, Saipan and Tinian; and those on the second tour, Iwo Jima, Kyushu-Honshu, Okinawa, Nansei-Shoto and Tokyo.

In August 1943 aboard the USS *Essex*, first of the new "fast carriers," VT-9 with its 18 *Avengers* was ready for its primary, death-dealing mission as a torpedo bombing squadron. Acting upon the principle that learning is doing, the task force, which also included the *Yorktown* and the *Independence*, undertook an exercise in war, a second raid on Marcus. The first had been made over a year before when Admiral Halsey's forces attacked the island in a prelude to the Doolittle raid on Tokyo. The second raid was to prove educational not only for the pilots who were untried in actual combat, but also for the Japanese in their self-elected course in fighting the power of the United States Navy.

Japanese *Yamoto* exploded after six torpedo hits were scored by VT-9 planes

At 0720, 31 August 1943, eighteen Grumman *Avengers* of VT-9 led by Lt. Cdr. Paul E. Emrick, squadron commander, and escorted by 16 *Hellcats* of VF-9, departed for Marcus 102 miles away. Arriving at Marcus, the flight peeled off at 0830 at 5,000 feet to drop tons of G.P. bombs and incendiary clusters. Returning to base, VT-9 refueled, re-armed, returned to Marcus and did it again. This time another part of the island felt the brunt of attack.

In these two strikes, VT-9 dropped 31 tons of bombs and a ton of incendiary clusters and expended 33,000 rounds of ammunition. They set a high standard of damage to the enemy without suffering any casualties and proved that the solid preparation of months of training made it easy to pass the first quiz—the battle test.

On 21 September 1943, the largest carrier force yet assembled — *Essex, Yorktown, Lexington, Belleau Wood, Cowpens* and *Independence* — headed west for Wake to take part in a full-dress rehearsal of revised air and surface tactics. For two days, 5-6 October, VT-9 operating from the *Essex* took part in the blasting attack on the island, going in with the first wave, a pre-dawn "pathfinder" strike. In six strikes involving 67 sorties in which it dropped 46 tons of bombs, VT-9 joined its power with SBD's and fighters of its own air group and other squadrons. This was no place for lone rangers.

When the carrier force withdrew, an estimated 51% of the buildings on Wake and Peale islands had been shattered; 85% of the main buildings, destroyed.

TEN DAYS later at Espiritu Santo, the task force anchored to prepare for the landings in the Gilberts. At this point, a rapier-like jab against Rabaul was ordered by Admiral Halsey to blunt Japanese striking power. Two naval task forces were ordered to launch their attacks at 0800 and 0900, 11 November 1943. That schedule was scrapped when one task force arrived late and the other early, thus hitting the Jap stronghold simultaneously. In the melee that followed, many a Japanese man o'war saw the end of its battle career.

Operating in heavy squalls which formed an excellent barrier against AA fire, the six sections of VT-9 under the leadership of Lt. Cdr. Donald M. White hunted out the prey beyond the outer bay and went in for the kill. Final score: confirmed hits on five cruisers, one light cruiser and a destroyer.

Before a second strike materialized, just as 16 TBF's and 31 F6F's were airborne, launchings were halted to repel 126 Jap planes which were headed for the task force. Heavily loaded with bombs as the *Avengers* were, they immediately gave chase. Lt. (jg) Harry V. Weldon destroyed one Jap before the fighters swept in. The TBF's moved out to the circumference of the fight, but soon they went to bat again. A large formation of *Kates* hugging the water was sighted, so the *Avengers*

broke formation and went after them. Of the Japanese attack force, 46 were shot down. Only one plane got close enough to a carrier to drop a bomb and it missed!

And then Tarawa! The cruise thus far had been prelude to this invasion. On D-2 day, 18 November 1943, six TBF's led by Lt. Cdr. White went in with the second wave of battering raids designed to soften up the island fortress. The strike went on for two days, and on D-day after the first strike, air support became the new function of Torpedo NINE. In 11 flights involving 86 sorties, 82 tons of bombs were delivered by VT-9 to Japanese installations.

Kwajalein was the target of a short raid 4 December 1943, anticipating the main battle for the island the end of January. For four days beginning 29 January, the swashbuckling *Avengers* of VT-9 delivered 67 tons of bombs FOB USA. Losses to the Japanese settled the freight bill.

On the 16-17 February, the Task Force delivered its lethal loads to Truk for two days, and five days later successfully carried out the Saipan-Tinian operations.

Destruction had been dealt by VT-9 in its first cruise against eight Japanese bases. The first course had been concluded with honor. Well-planned attacks by battle-trained veterans decimated enemy power.

ALMOST a year later, 3 February 1945, VT-9 stripped of its veterans, was back again in the Pacific, this time on the *Lexington* at Ulithi anchorage. Could the new VT-9 operate fast and efficiently under pressure? A unanimous YEA can be given in the light of the first challenging mission facing the squadron.

After the *Lexington* set sail, the squadron learned that its first flight would be against Tokyo. According to the basic plan, VT-9 was not scheduled to go into battle the first day. Then suddenly on the very day of the attack, 16 February 1945, after the first fighter sweeps, VT-9 was assigned to its first target, Nakajima aircraft plant at Ota, 80 miles inland, 50 miles northwest of Tokyo. There was less than an hour to plan the strike, brief pilots, work out navigation and take off.

Lt. Cdr. Byron E. Cooke was designated leader of the entire flight of Air Group 9 as well as planes from the USS *San Jacinto*. Charting the course north of well known defense areas, Lt. Cdr. Cooke led the flight across the coastline 50 miles north of Choshi at 13,000 feet. Five miles east of Ota, Cooke signalled the VB to attack and led his VT in a wide circling turn, approaching the target from out of the sun. The dive beginning at 13,000 feet was down a cone of AA fire delivered from guns which studded the roofs of the Nakajima plant. The VT-9 planes were under constant fire throughout the dive and retirement. Only one plane of the squadron was hit, fortunately not fatally. When VT-9 and VB-9 left, great fires at the plant could be seen from as far away as 70 miles.

But there was no time to watch the flame-ruined factory. As the planes left the scene, they were jumped by Jap fighters. Cooke's plane was clipped by a Jap fighter that paid with his life for the damage to the *Avenger's* propeller which slowed the TBM to a perilous 140 knots. Lt. Cdr. Cooke tried to pass the lead, but the formation closed in and, for the next half hour, ran the gauntlet of continuous fighter attacks. Of the five enemy fighters that broke through, one crashed; four others were hit by turret gunners, and of these, two fell easy victims to VF-9 fighters. Once the sea was reached, even slower speed—now 125 knots—had to be endured. But all returned safely from the ordeal, exhilarated to report, "Mission accomplished."

Lt. Cdr. Byron Cooke, daring skipper, lost his life in the battle for Okinawa

FOR THE remaining assignments of VT-9 at Iwo Jima, Tokyo again, Kyushu-Honshu and Okinawa (where Lt. Cdr. Cooke tragically crashed in collision with an F6F), VT-9 maintained its record of valor. To VT-9 fell the honor of finishing off the Japanese battleship *Yamato* after *Intrepid* pilots had severely damaged it.

The *Intrepid* strike leader expressed the opinion that a few more torpedoes would sink the *Yamato*. Lt. Thomas Stetson, leader of VT-9, Lt. John Kirwin, Lt. (jg) William Gibson, Lt. (jg) William Collins, Lt. (jg) John Carter, and Lt. (jg) Grady Jean were the ones who did it. The first four attacked together, sending their torpedoes straight, hot and true. Lt. Carter and Lt. Jean made individual hits immediately thereafter. Five minutes later the *Yamato* heeled over, leaving only an oil slick as her memorial.

Meantime Ensign Leon Frankel, Ensign William W. Patterson, Lt. (jg) Robert D. Fulton and Lt. (jg) Stewart Bass accounted for an *Agano*-class cruiser, and Lt. (jg) Clyde Lee and Ensign John D. Page sent a crippled destroyer to the bottom. The last remnants of the Japanese fleet were going fast.

As the second cruise ended and VT-9 headed home 15 June 1945, its record in four months of combat was proof of its fighting worth: Two major Jap warships, 2 large merchantmen, 5 small merchant ships, 66 strikes and air support missions, 592 sorties, 396 tons of bombs dropped, and heavy damage to airfields, the Nakajima Aircraft Plant and the Kure Naval Air Arsenal.

"It was a record of which every man could be proud."

Saipan was just one of the Japanese outposts to feel the battle-trained, lethal punch of Torpedo Nine when it struck the island in full force 22 February 1944

THIS IS THE LOUNGE IN THE BOQ AT GLENVIEW TODAY, WITH WOMEN, CHILDREN (AND BABIES) LOOKING AT PRIZE FIGHT ON TELEVISION SCREEN

PEACE, IT'S WONDERFUL!

(A NAVAL AVIATION NEWS writer recently made an 8,000-mile aerial tour to the Pacific coast gathering material for articles. The last time he visited those air stations was during the height of the war. Following are his reminiscenses on the subject: "How times have changed!")

THE PEACETIME Navy's life is better than it was during the hectic days of 1945—you don't have so much trouble getting a bed to sleep in at naval air stations, the food is better, the pace is more normal and it is a lot easier to get things done.

Stepping out of your plane, at Glenview, Oakland or Denver, you are met by the operations officer . . . *During the war we never saw a single operations officer* . . . he has an automobile to take you to the BOQ . . . *Our arms still ache from carrying our suitcases miles at San Diego and Jacksonville during the war.*

"Side boys" stow your bag in the car . . . they have on *blue* dungarees instead of the usual faded white-blues. *The BOQ's are no longer teeming with squadrons of pilots shouldering you aside at the registration desk.* Civilian girls at Seattle and Glenview give you a card to sign. Something new has been added though—you usually pay $5 deposit to get a room—too many characters ran off without paying any room rent during the war.

You can always get a pretty fair room in the main BOQ—*no more "splinterville" quarters with four guys to a room as at Miami* . . . Some rooms, Seattle, for instance, even have telephones . . . that's phenomenal, in the light of wartime days. The furniture still has the cigaret burns and the wall is still streaked with dirt where someone's shoe slammed against it or someone's hand left prints, but it's more restful.

Fellows in civilian clothes swarm through the BOQ lobbies all over the country . . . are they USN's or civilian Reserves out to get in some flight time? We saw a WAVE at breakfast one morning in uniform at Glenview . . . that night she was sitting in the lobby where once only males abounded—wearing a chartreuse dress. *Wartimes were never like that.*

At Glenview little children played in the hallways or watched television prizefights . . . where did they come from? Seems that one wing of the BOQ is now occupied by married couples . . . Alameda's fancy BOQ had to close off two whole wings for lack of customers . . . *it used to have waiting lines to get in.*

Two aviators at the breakfast table talked about professors at the college where they were attending classes . . . *We never heard professors mentioned at any air stations during the war* . . .

When closing time came in the Reserve training command at Glenview, an enlisted man grabbed a broom and swept out the office where he worked . . . one of the new peacetime innovations. *During the recent unpleasantness, most station offices either did not get swept or janitors did it.*

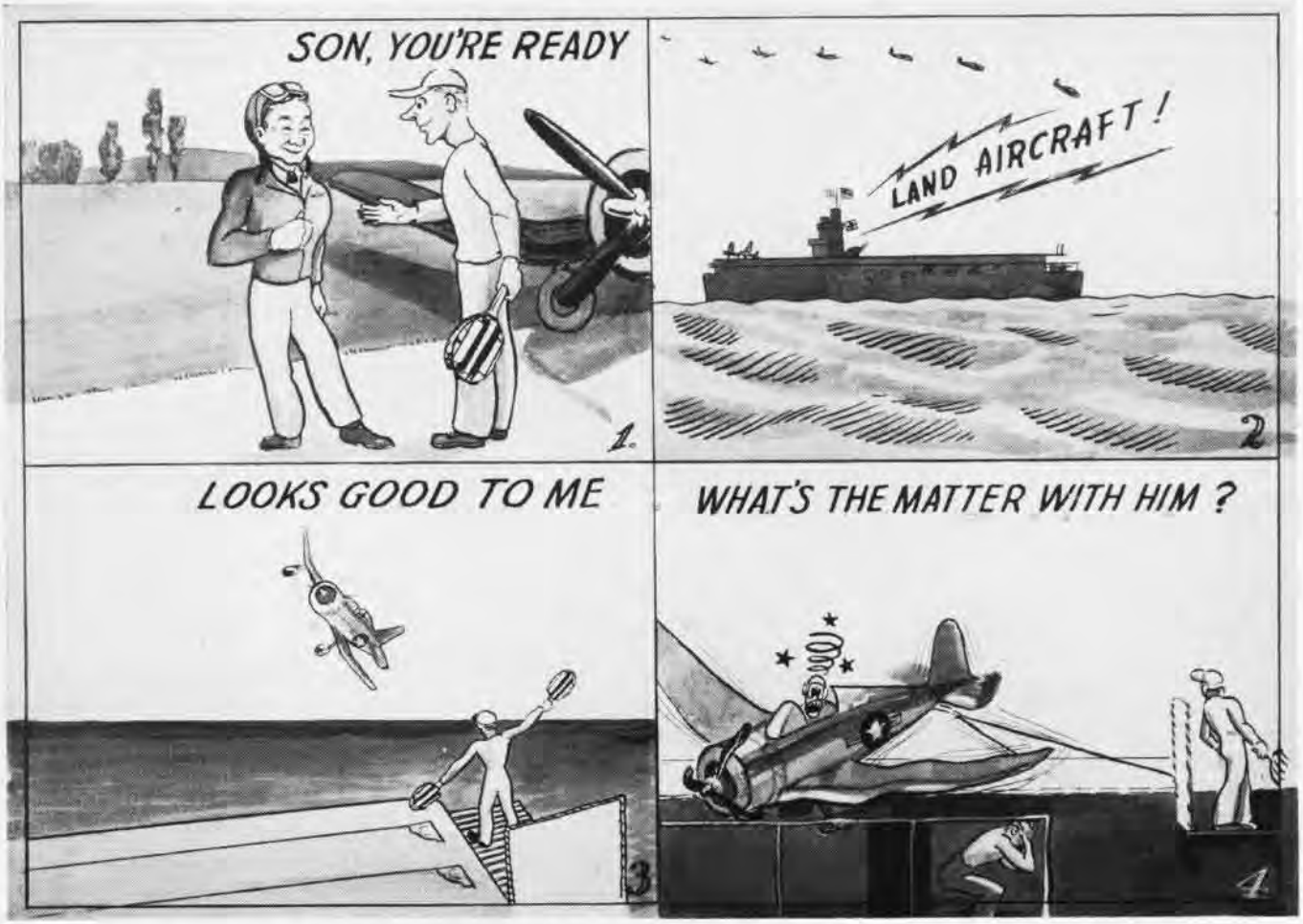
DISTANCES between buildings on the air stations haven't gotten any shorter . . . it still is a day's journey around the landing field at MCAS El Toro or Cherry Point . . . Those stations were laid out in the grand manner and now that bus services necessarily have to be curtailed, getting around a station sometimes takes hours. Fortunately, jeeps or station wagons are a little easier to get now. *It took an act of God and three captains' signatures to get a station wagon at Jax in 1943.*

Somehow we didn't miss the early morning stompers who came in at 3 a.m. from a date with the girl friend and banged down the BOQ halls, waking everyone up on all sides . . . or the guy who had to go on duty at 6 a.m. and didn't care who slept after he got up. Some still draw that duty, but they're quieter about it.

Officers' messes are pretty empty these days, comparatively speaking, and the chow costs a little more . . . the best financial deal is to eat in the general mess. You can get a good meal for around 20c. You can't even buy the food for that price outside these days. We never paid $1 for a meal in an officers' mess during the war . . . but you do it now, brother.

But the real payoff of the trip came when we walked into the beautiful BOQ at Alameda at 2 p.m. on a Sunday. Two enlisted men behind the desk rushed at us with open arms, saying "Welcome, gentlemen, you are the first customers we have had today."

We knew then the war was over.



LT. I. CUTTEM

THE BIG day had arrived at last . . . Lt. I. Cuttem was going to shore duty . . . leaving the U.S.S. *Dwarfdeck* where he had served as Landing Signal Officer for more than a year. The gang was giving him a farewell party, and he couldn't help thinking what a swell bunch of fellows he was leaving. Just then someone slipped a long white envelope into his hand. There was a chorus of "Read it out loud." Cuttem cleared his throat and then read the following touching testimonial from the boys:

TO WHOM IT MAY CONCERN

Lt. I. Cuttem has been our LSO for the past year. He is leaving. We are satisfied.

Of course the boys didn't mean it. They had always had a lot of confidence in their LSO, but when the laughter died down Cuttem decided that the time had come for his speech.

"Fellows," he said, "I've got a confession to make. I know it's going to be a shock to you, but here it is. I have it on good authority that Landing Signal Officers aren't perfect. They're only right about 99¾% of the time."

Cuttem must have been peeking at the recent accident statistics on carrier landing crashes, for that is actually just about the story they tell. Because accident boards are made up of pilots who normally have a great deal of confidence in their LSO's, most boards are very reluctant to assign any error to the man with the paddles.

However, a number of recent barrier crashes indicate that some of the Landing Signal Officers can't forget the old wartime urgency when it was necessary to get the boys down and get them down fast. They remember "cuts" that they took during hurried wartime operations, and sometimes expect a little too much of the pilot who is making his first landings in carrier qualification work.

The cases listed below illustrate some of the mistakes that LSO's have made in recent months. Except in an emergency an LSO should demand a nearly perfect approach before giving an inexperienced pilot a "Cut." Remember that in peace-time flight operations, safety is of prime importance.

Case # 1—"Pilot in an F4U was making his first approach to a carrier landing. His pattern was normal, but he still had his wings banked and was in a left turn when he received a cut to land. The pilot failed to level his wings and to stop turning in time to line up with the carrier deck. and after catching the number 2 wire, rolled off the deck into the port catwalk. Board believes that since it was this pilot's first landing he should not have been cut while in a turn."

Case # 2—"F6F pilot was engaged in carrier qualification work and his first landing was normal. His next approach to the deck was normal in all respects except that he was *fast* at the time he received the 'Cut.' He dropped the nose of his plane for the deck, and then applied back pressure to cushion the landing, but he had not allowed the nose to drop enough, and his excess speed carried him up the deck and into the barriers."

SEAGOING CIVILIANS

GUESTS ON USS MINDORO CRUISE HAD FIRST OPPORTUNITY TO WATCH FLATTOP AIR OPERATIONS

I HAVE lived with 2000 boys on a great carrier, eaten with them, talked with them, learned something of their problems, what they are thinking and something of their ambitions. I have seen the efficiency of the Navy in actual operations and have felt a new pride in our country which can produce such men and such ships."

That's the president of a large automobile company talking after a cruise on the USS *Tarawa,* and his words have been echoed by hundreds of other leading Americans.

Good recruiting, good public relations, good business for the Navy—call it what you will—the results add up. Since V-J Day at least 2500 Americans—industrialists, publishers, writers, educators, representatives of labor, public officials, clergymen—leaders in their particular fields of work, have gone aboard fighting ships for cruises as guests of the Navy.

Naval aviation plays a major role in this program. Carriers, inherently well suited for the part, provide better than any other type of fighting ship the best portrayal of the sea-air power so vital to America's defense.

CIVILIAN V. I. P.'S ON DECK TO SEE EVERYTHING

Typical of the Navy guest cruises was one aboard the escort carrier USS *Mindoro* early in November. Pictured above, the group includes (left to right) Lt. Cdr. W. R. Richardson, escorting officer; Mr. Henry Fussell, Lockheed Aircraft Corp.; Dr. J. Carey Taylor, Asst. Supt. Schools, Baltimore, Md.; Mr. Edgar P. Phillips, Pres. Phillips Machinery Co., Richmond, Va.; Mr. Lewis Beatty, Philadelphia Electric

RAILROAD EXEC. INTENT ON CARRIER ACTIVITY

Co.; Mr. Donald P. Schmitt, Pres., Navy League of Ohio; Mr. Anthony Netboy, literary agent; Mr. W. J. Jenks, Chairman of Board, Norfolk and Western Railroad, Roanoke, Va.; Capt. Joseph M. Carson, CO of the *Mindoro*; and Cdr. C. M. Campbell, Exec.

The visitors were flown from Washington by NATS to Guantanamo Bay where, as guests of the Commandant, they were given every opportunity to observe activities and inspect the facilities of a typical off-shore establishment.

At Guantanamo they went aboard the *Mindoro* and were guests of her skipper during a three-day cruise to Norfolk. The *Mindoro* played the perfect host by staging a real air show. The first day out of Guantanamo she launched *Hellcats* and *Avengers,* and for two hours those planes demonstrated antisubmarine tactics with rocket firing, bombing and strafing attacks on a target spar towed off the carrier's fantail.

Aboard ship, guests were encouraged to be curious. Junior officers escorted them wherever they wished to go and answered questions concerning air operations or shipboard activities. The visitors were fascinated by the flight deck operations as well as by CIC. Escorting officers, ETM's and quartermasters worked overtime explaining the operation of radar equipment, loran gear, and navigational procedures.

THE CRUISE on the *Mindoro* was one of many in which carriers have participated since the "Civilian Cruise Program" began in the summer of 1945. Termination of the war allowed relaxation of security and left many newly-commissioned ships available for extended shakedown. The program, operated from the beginning under the direction of the Office of Public Relations, had the support and personal interest of Mr. James V. Forrestal, then Secretary of the Navy.

During the past year curtailments in fuel and the assignment of more and more ships to the mothball fleet have caused a tapering off in the cruise program. It is being continued, however, as a most valuable part of the Navy public relations.

Aboard fighting ships at sea, outstanding American civilians see their Navy at its best. There, leaders and molders of public opinion can watch their Navy at work, study its problems and its needs, thus gaining a better understanding of their Navy's mission and what it takes to fulfill it.

BUNYAN'S BOYS HEW OUT FINE AIR PROGRAM

'DIGGING OUT SO PLANES CAN FLY' IS THE STANDARD WINTER PROCEDURE AT NAS MINNEAPOLIS

WHEN A Navy Reserve program was drawn up for Naval Air Station, Minneapolis, Reservists had a patron saint waiting for them.

In Paul Bunyan, king-size logger renowned in local fable, they found a figure whose accomplishments were great enough that even the Navy could grow while trying to equal them. In Babe, his blue ox, nurtured on the milk of a western whale, they found an example of faithful assistance which has become the keynote for Reserve activities at this station.

Following in the giant footsteps of the mighty Paul, Reservists have carved a top-flight training program out of an area, which for six months out of the year has the coldest weather in continental United States.

As Bunyan accomplished his feats against overwhelming odds, so in 1947 did the men of Minneapolis fly 32,426 hours despite hazards of weather and distance. This places them near the top of all Reserve stations and even higher when the ratio between hours flown and squadrons and planes is computed.

Had the mighty logger stopped to rest awhile last June, he could have leaned on his ax and grinned down on the 276 pilots, 41 ground officers and 223 enlisted men who were taking their two weeks training duty. June was the best month for him to inspect his flying sons-of-guns, for in that month they piled up 6453 pilot hours.

BUT IT is in winter that the work starts in earnest for those who live in the way the great Paul has set for them. The frigid season officially arrived in Minneapolis on 21 December. Nobody in public works even stopped to take notice. Already they had cleared more than 30 inches of snow from parking strips and runways. Similarly, maintenance crews had long since formed the habit of getting out before dawn to start pre-heating operations needed to keep the near-Arctic blasts from grounding flights.

Lt. Joseph Eischens, head of maintenance, knows Minnesota winters and their vagaries well. Enlisting in the Organized Reserve as seaman second class at this very base 17 years ago, he has served continuously there, except for an interval overseas during the last conflict.

Two other men, who have been members of the Naval Air Reserve almost long enough to remember the days when Paul Bunyan roamed the forests, have also contributed much to smoothworking operations at the station. They are Lt. Earl Hoey, in charge of enlisted training, and Lt. Mel Severson, assistant maintenance officer. Both can claim 17 years in the Reserve and both enlisted at this base as Seamen Second class.

PAUL BUNYAN never recruited a crew of mortal loggers faster than NAS MINNEAPOLIS got together its crew. In July 1946, shortly after the airbase was activated as a Reserve station, a campaign was staged for stationkeepers. By September the complement was virtually filled. Immediately a drive was started to obtain Organized Reservists. That complement is now more than 85% enrolled.

Minneapolis now has 652 Navy and Marine officers in the Reserve, another 785 in standby status, and 1900 Navy and Marine enlisted men. There are 40 officers on active duty and 545 enlisted stationkeepers.

Historians have neglected to tell about the accomplishments of women during the days of the illustrious Paul. In this field, however, Minneapolis is making its own history with the largest WAVE unit (V-10) found at any Reserve base. Of the 115 WAVES enrolled in this unit, 60 came out for two-weeks

RESERVE PILOTS AT BEMIDJI CHECK RED LAKE TARGET AREA ON MAP

INSPECTION PARTY REVIEWS THE CREW LINED UP IN THE DRILL HALL

Operations personnel, AMM2 Kay Wick, S2 Russell Blue, S/Sgt. LeRoy Benson prepare extended flight planning map

Two Link trainer instructors in WAVE volunteer unit at NAS MINNEAPOLIS receive check-out from WAVE Byrle McCart

training cruises last year. Each weekend finds at least 20 of them volunteering their time. Inspector-instructor of this group is Lt. Rosemary Daly.

In addition to the Air Reserve, the base also serves as training center for the Minneapolis Surface Reserve (with 1200 officers and men), the St. Paul Surface Reserve (800 officers and men), and a Marine Battalion (600 officers and men). With some 6,000 Reservists using the base, Minneapolis is one of the largest Navy training centers.

The station is located on the Twin Cities Metropolitan Airport, originially called Wold-Chamberlain Field in honor of two W. W. I fliers. It has three hangars. The station has been in active commission since 1928 when it was established as a Naval Reserve Aviation Base. During the war it was a primary flight training base and mechanics school in the training command.

With the cooperation of the Minnesota Game and Fish Department and the city of Bemidji, a suitable area for bombing and gunnery training was obtained in the sparsely-inhabited Paul Bunyan country north of Upper Red Lake, some 240 air miles from the station. This land is the haunt of the only surviving caribou herd in continental United States. To reach this area Reservists use the large modern airfield at Bemidji, 40 miles away, where the city of Bemidji has made the necessary facilities available.

CAPTAIN BRIGGS, CO OF NAS MINNEAPOLIS

During the summer months groups of pilots and enlisted men perform weekend and three-day cruises at Bemidji, pounding at the targets from early morning until late in the evening. During these cruises, they dropped 3638 miniature bombs, 1913 waterfills and shot 1242 rockets. After duty hours, they enjoyed the fine fishing for which the region is famous.

During the year the station was host to thousands of civilians at open house celebrations. More than 30,000 visitors turned out for Navy Day 1947. Previous to the restrictions on air shows, the Reserve squadrons had performed at more than 40 air shows before hundreds of thousands of spectators in Minnesota, North and South Dakota, Wisconsin and Iowa.

Just as Paul set out to make things easier for the loggers who formed the community in which he lived, so NAS MINNEAPOLIS is always on the lookout for ways to serve the community in which it is located.

After word was received about a tornado in Mankato, 90 miles south, two ambulance loads of emergency medical supplies and one of emergency electrical equipment were broken out and offered to the stricken residents.

During Minnesota's worst polio epidemic, a portion of the station dispensary was turned over to the Sister Kenney institute as a convalescent hospital.

Commanding officer of the station is Capt. Cameron Briggs, a naval aviator since 1928. He reported aboard last August from the CVE, *Palau*, Flagship

Maintenance crew from NAS MINNEAPOLIS arrives at Bemidji airfield for day's operations during training cruise

Pilots Solberg, Coughlon, Kieling, Schmidt, Steffenhagen, McCabe use preheaters to heat their hands and their planes

Co-pilot Cooney watches PhM McDermott give first aid to CSK Tellerman during an emergency flight in NAS plane

Instructor James L. Tompkins outlines working principles of the ultrasonic trainer to Organized Reserve pilot Richards

of CarDiv14, of which he was commanding officer. During the war he served as CO of VCSA of Cruiser Wing Atlantic and as executive officer of the *Yorktown*. He is ably assisted by Cdr. L. D. Ruch, whose Navy duty has included tours as CO of VRF-1 and CO of CASU 32, Kahului, Maui.

The two Marine fighter squadrons and MGCIS group, which comprise the Marine units at the station, are almost 100% complemented. During the September maneuvers at El Toro, they had the largest group present from any station. Sixty pilots and ground officers and 230 men made the trip in 26 *Corsairs* and 9 *Commandoes*. Lt. Col. Carl J. Fleps is CO of the Marine Air Detachment; he is assisted by Capt. L. V. Swenson.

During their training cruise with VR-3 of NATS at Patuxent River last September, VR-52 and VR-69 also chalked up an enviable record. They had no delays and no cancellations on their regularly scheduled Harrisburg-Willow Grove run. The 12 enlisted men stood a 24-hour watch and did all the maintenance work on the squadron's R4D.

There is a GCA unit based on the station which is on call 24 hours a day. This unit, which was activated in September, has a complement of 2 officers and 13 men. In November, it scored its first emergency "safety," by bringing in a National Guard A-26 under almost zero, zero conditions.

A well-rounded ground training program for all officer and enlisted personnel has been developed by the Aviation Technical Training Department, manned by 2 officers and 20 enlisted men especially selected for this work. The department also sponsors a program designed to help raise the general educational level by providing USAFI and off-duty courses for volunteer attendance.

Welfare and recreation, under the direction of Lt. Francis J. Crotty, is another very busy department. Baseball, basketball, hockey, tennis and bowling teams represent the station in local competitions. An extensive intramural program in all sports is also underway.

With these varied activities, with smooth-running operations all along the line and with the past year's records snugly secured beneath their belts, the Reservists at MINNEAPOLIS are carrying on in the best Bunyan tradition.

Minneapolis Reserve Squadrons

VF-65-A	Lt. Cdr. R. D. Nicolin, CO; Lt. E. McGonagle, Exec.
VF-66-A	Lt. J. C. Macklin, CO; Lt. L. DeConcini, Exec.
VA-65-A	Lt. J. P. Van Altena, CO; Lt. (jg) L. J. Morgan, Exec.
VA-66-A	Lt. J. Oster, CO; Lt. J. B. Schmidt, Exec.
VF-64-E	Lt. Cdr. L. L. Johnson, CO; Lt. G. E. Hollingsworth, Exec.
VA-64-E	Lt. J. N. Dau, CO; Lt. (jg) D. C. White, Exec.
VF-83-A	Lt. G. L. Powell, CO; Lt. R. B. Behrends, Exec.
VA-83-A	Lt. Cdr. N. A. Sterrie, CO; Lt. W. J. Schwen, Exec.
VP-ML 61	Lt. Cdr. S. G. Wahlberg, CO; Lt. Cdr. F. J. Carleen, Exec.
VP-ML-73	Lt. Cdr. R. F. Cairow, CO; Lt. Cdr. D. M. Swanson, Exec.
VR-52	Lt. Cdr. W. Jordan, CO; Lt. J. T. Marchel, Exec.
VR-69	Lt. Cdr. H. W. Sumi, CO; Lt. J. R. Claesgens, Exec.
FASRon-62	Lt. Cdr. L. F. Campbell, CO; Lt. Cdr. W. B. Walrath, Exec.
FASRon-162	Lt. Cdr. C B. Huber, CO; Lt. N. R. Rafshol, Exec.
VMF-234	Maj. T. P. Wojcik, CO; Maj. R. A. Thorson, Exec.
VMF-213	Maj. V. A. O. Stuhr, CO; Maj. C. C. Myre, Exec.
MGCIS-16	Maj. C. C. Gordon, CO; Capt. W. W. Larkin, Exec.

At Bemidji Lt's (jg) S. V. Carsten and W. D. Grumstrup stop to salute figures of Paul Bunyan and his faithful blue ox

Lt's (jg) Dutcher, Richards and Loverud look at their scopes as SpT(LT)3 Scherrer explains the ultrasonic trainer

THE MEN OF THE LEYTE FEEL RIGHT AT HOME ON THE ROLLING DECK OF THE MAJESTIC CAMEL

THE LAY OF THE LEYTE

HOW WOULD you like to be the Continental type? Or perhaps you would prefer to be an International banker? Send your application today, to Carrier Air Group 7, an outfit most ably fitted to give you the worldly air.

Why just the other day a fighter pilot from CAG-7 created a financial furore by purchasing the Greek *Acropolis* under the very nose of Wall Street. This very capable financier caught the market right, when the owner found himself temporarily short, and closed the deal. The thing that clearly marked the man a genius was that part of the transaction involved a very slow mover —the Brooklyn bridge.

Or—the Navy life is a *hard* life, albeit salty. Now, before we continue, let us observe a moment of silence for the gentlemen of Carrier Air Group 7, those hardy lads who have just recently finished a rigorous tour aboard the good vessel *Leyte*. At right good cost they achieved the manner suave. Their learned greetings ring out: "Bon Jour," "Kalimera," "Buenos Dias" or "Buon Giorno," but alas, they have forgotten how to say "hello."

The odyssey of the *Leyte* and her shakedown cruise began with a trip to South America on 3 September, 1946. This first cruise ended 12 December, 1946, at Quonset Point. The ship and squadron remained ashore until 3 February, 1947, when they participated in the Second Fleet Maneuvers, again returning to Quonset on 18 March. Early April saw the outfit headed for the blue Mediterranean.

Back to Quonset on 3 June and out again the first week of July, this time headed for Argentia on a three-week NROTC training cruise. Home on the 25th and out again for Europe on the 30th. This little jaunt lasted into November when CAG-7 finished 14½ months of duty with a total of 99 days spent in the States.

TIED UP UNDER THE SHADE OF MOUNT VESUVIUS

During the above period, the *Leyte* dropped her hook at Gitmo Bay, Colon, Panama City, Valparaiso, Lima, Quonset, Port-of-Spain, Trinidad, Gibraltar, Suda Bay, Crete, Istanbul, Alexandria, Naples, Argentia, Algiers, Golfe de Juan, Malta, Iamir (Turkey), Athens and Taranto (Italy). And this list does not include the places seen by our wandering boys ashore, or repeated stops.

As a matter of academic interest (*waaahooo!*) some of the by-stops included Nice, Cannes and the Riviera in France. This kind of globe trotting is naturally conducive to confusion on such matters as to just which language is correct, what kind of money to spend, how revealing can a bathing suit get, whether to drink coffee with cream and sugar or brandy, and divers other strange but delightful native customs.

ALL HANDS convert American dollars to pesos, pounds, pence, francs, lire, peastres, kurush or drachma with amazing skill and results. Souvenirs ranged from the utilitarian to the macabre. Brought aboard were bicycles, cameos, a number of dead camels disguised to resemble hassocks, and one priceless gook-skin rug, belonging to the Group Landing Signal Officer.

The products for which the various countries are famous moved *en masse* to the hold of the *Leyte*. CAG-7 shopped for cloth in Gibraltar, for perfume in France, for briar pipes in Algiers, for accordions, leather, lace, oil paintings, woodwork and crystal in Italy, for rugs in Turkey and for silver in Peru. And a merry, merry Christmas was had by all. A lot of education can be gained by batting around the ports of the world, just like the Navy recruiters promise.

TWENTY-ONE GUN SALUTE IS FIRED BY LEYTE AND ESCORT VESSELS AS GIBRALTAR IS PASSED

IN ITALY THEY BELIEVE IN CARRYING BIG BILLS

THE CENTURIANS

100 LANDINGS ABOARD THE CV LEYTE QUALIFY A PILOT TO JOIN THIS EXCLUSIVE ASSOCIATION

IT SOUNDS good doesn't it? Sort of like having a long leave with transportation furnished to the spot where you'd most like to spend it. However, take a look at the record amount of work the boys managed to get in between times. On 4 September, 1947, one year from the day CAG-7 went aboard for the first time, the 9,000th carrier landing was made. A couple of more thousand were completed before the ship tied up at Quonset two months later. CAG-7 flew over 21,000 hours with an accident rate of 24.87 per 10,000 carrier hours. Shore-based operations are not broken down because of the negligible number of hours flown ashore, plus the fact that the last *Leyte* pilot to land on an airfield groundlooped, making the whole subject somewhat sensitive. The groundloop presented the interesting problem of towing a 23½-foot airplane through the 20-foot wide streets of Malta. Oh well, the plane was a strike anyway—before towing, that is.

The *Leyte* covered some 67,300 miles while the Group dropped a total of 9,716 bombs, fired 9,883 rockets and shot up 225,439 rounds of ammo. The average landing interval for the group over the entire period was 37.4 seconds, with the best group average being 28.0 seconds and the best squadron average 22.8 seconds. *(Wonder what sort of character keeps these figures?)*

Leyte pilots and men caught up on the social graces, too. They engaged such renowned personages as Elsa Maxwell and the Duke and Duchess of Windsor on their home ballrooms with nary a man lost. Entertainment was free and lavish in all countries, the lads gaining a nodding acquaintance with many a quaint neighborly bowl. Battle was joined with the beverages raki, oyze, vodka, pisco, and "the screwdriver." Honor of the sea was upheld in every encounter, though at the cost of a tarnished Ensign or two.

All in all 'twas a good tour, though somewhat rugged. And to rub salt in the already salty wounds of CAG-7, some of the wives and sweethearts met their hard-working men-folk on the dock with a cold and questioning stare.

NAVAL Aviation, at least a unit of it that flies as Air Group Seven, has borrowed an idea from the British and formed an organization known as *The Centurians*. It is composed of men who have made 100 carrier landings aboard the *Leyte*.

News of the new organization came to light when CAG-7 returned to the states after some 70,000 miles of cruising the world. The organization calls attention to the impressive record of sorties flown and landings aboard and serves as a little recognition of pilot performance. It is an idea other carriers may want to copy.

Fifteen pilots aboard the *Leyte* who had made 100 landing on that ship organized in October and took in one additional man before the cruise ended. They adopted an insigne with a red "L," gold figures "100" on a blue field, to be worn on the flight jacket. A certificate of membership patterned after the Shellback certificate was adopted; one which incidentally elevated *Grampaw Pettibone* to equal status with *Neptunus Rex*, as Ruler of the Sky.

Since the *Centurians* is a permanent organization aboard, acquiring new members throughout the commissioned life of the *Leyte*, a plaque was designed to be mounted in the wardroom listing the name, rank and squadron of each member. The original 16 are charter members and those who qualified after 18 November 1947 will be members.

A set of rules and by-laws was approved by Capt. E. R. Peck, CO of the *Leyte*. Lt. Ben Park, who designed the insigne, broke out his tool kit and turned out a mahogany plaque worthy of Tiffany's. Ens. Will Longley designed a certificate that all will be proud to frame and Lt. Ralph Beattle inveigled the print shop into a rush job of printing the first batch.

Lt. (jg) Larry Lawton hand-painted sufficient shoulder patch insignia for all members.

The organization will be fairly exclusive, since it took more than a year of continuous and heavy operations to qualify the 16 pilots listed as charter members. They are as follows:

Lt. (jg) L. W. Lawton, Ens. W. H. Gathje, Ens. W. E. Longley, Lt. Cdr. M. C. Norton, Jr., Lt. (jg) H. R. J. Drew, Ens. G. M. Watson, Lt. (jg) F. Julliard, Lt. B. F. Park, Ens. C. H. Schindler, Ens. T. B. Russell, Jr., Lt. R. H. Beattle, Lt. (jg) J. K. Koelsch, Ens. E. D. Kimble, Lt. L. E. MacFawn, Lt. Cdr. C. D. Winner and Ens. H. W. Mount. They are from VF-7-A, VF-8-A, VA-8-A and VA-7-A squadrons.

NAS PENSACOLA—To provide a more variable selection of photo opportunities for deserving students at photography school, a plane with a crew of photographers was sent to Miami to photograph the Marine Corps League national victory assembly. Main events to be pictured were the Marine Cavalcade in the Orange Bowl and the amphibious landings at Miami Beach.—*Gosport*.

DID YOU KNOW?

Air Traffic Control Via AF

Navy Now Uses Air Forces System

In connection with the air traffic control of Navy and Marine Corps planes, the Navy began using the facilities of the U. S. Air Forces flight communications system within the continental United States during January. This system is officially known as the "Military Flight Service System."

Aircraft of both services formerly used the airways communication system of the Civil Aeronautics Administration, which became overcrowded as a result of expanded commercial aviation.

As compared with payment of $395,735 to the CAA, the Navy will now pay the Air Force $125,000 annually for this service and will pay telephone companies another $12,000 for interphone service. The net savings will be $258,735.

The Navy now transmits all messages dealing with movement of Navy and Marine Corps aircraft under visual flight rules via the Air Force system. Actual flight control of the planes and approval of flight plans remain under Navy jurisdiction.

Continental traffic of these planes under IFR will continue to be handled by the Civil Aeronautics Administration.

Adm. Towers Leaves Navy

Murray Becomes No. 1 Navy Aviator

Retirement of Admiral John H. Towers, Navy's #3 aviator, during December passed the honor of being the Number One active pilot to Vice Admiral George D. Murray, now Commander of the First Task Fleet.

Admiral Murray is the only man from the first 25 naval aviators to be still on active duty. He was #22 on the list, having won his wings at Pensacola in 1916. Another of the famous list of 25 to retire recently was Admiral P. N. L. Bellinger.

Admiral Towers' most recent duty was chairman of the Navy's General Board which post he took after being relieved as Commander in Chief of the Pacific Fleet and Pacific Ocean Areas.

Although he won his wings in 1916, he actually qualified as a pilot in August 1911 under regulations of the Federation Aeronautic Internationale since the Navy at that time had not set up a pilot program. He flew the Navy's first airplane and has been closely identified with naval aviation ever since.

TOWERS, ELLYSON FLY EARLY NAVY BIPLANE

From the early 1920's he was a strong proponent of the aircraft carrier to spearhead the fleet's attack. In October 1942 he became ComAirPac and later Deputy Commander in Chief, Pacific Fleet. In August 1945 he was commander of the Second Carrier Task Force and Task Force 38.

The accompanying photograph shows Commander Towers flying an early Navy biplane with Cdr. T. G. Ellyson, No. 1 naval aviator, at Hammondsport, N. Y.

The Marine Corps' No. 1 aviator on active duty today is Brig. Gen. L. H. M. Sanderson, who was commissioned a pilot 14 January 1919. He is now assistant commanding general of the First Marine Air Wing.

Radford Becomes Vice CNO

Versatile Admiral Held Varied Posts

A man who has held almost every type of job a naval aviator can fill—Vice Admiral Arthur W. Radford—has been named to the position of Vice Chief of Naval Operations, the Navy's No. 2 position.

One of the earliest naval aviators—he got his wings at Pensacola in 1920—Admiral Radford's record reads like a review of naval aviation's development. Once he had won his wings he joined VO-2 aboard the *Aroostook*, then served with aviation units aboard the *Pennsylvania* and *Colorado*.

ADM. RADFORD (CENTER) AT FH-1 TEST ON CVB

In 1929 he was assigned to aircraft squadrons of the Battle Fleet with additional duty as O-I-C of the Alaska Survey Detachment which investigated forest and mineral resources in Alaska. Later that year he was aboard the *Saratoga* as CO of VF-1, then aide and flag secretary to Admiral Harry E. Yarnell.

After a stint in the flight division of BUAER until 1935, he went aboard the *Wright*, an aircraft tender, as navigator. The next year he became tactical and operations officer on Admiral Frederick J. Horne's staff on the *Sara*. His next assignment was CO of NAS SEATTLE, followed by exec. of the *Yorktown*, CO of NAS TRINIDAD.

At the outbreak of the war he was director of aviation training in BUAER, setting up the tremendous pilot training program which turned out thousands of naval aviators. One of the small units under his guidance at that time was the section which published NAVAL AVIATION NEWS.

In 1943 he headed CarDivs 2 and 11, participating in assaults of Baker, Makin and Tarawa, winning the DSM for outstanding leadership. In December 1943 he became Chief of Staff to Adm. John H. Towers, ComAirPac, followed by appointment as Assistant Deputy Chief of Naval Operations for Air. Another assignment in active combat saw him commander of CarDiv 6 participating in carrier raids on Tokyo, the Iwo Jima and Okinawa invasions and raids on Japan.

Following end of the war, Adm. Radford served as commander of Fleet Air in Seattle, then Deputy Chief of Naval Operations for Air until February, 1947, when he became Commander, Second Task Force, Atlantic Fleet.

VR-6, PACIFIC—Only one typhoon troubled this squadron this fall, one that started southeast of the Philippines and caused cancellations of several Manila flights. The runway at Sangley Point was only inches above sea level. Water was held back by a rock and sand seawall. Sangleyites estimated a northwest wind of 55 knots and a four-foot tide would breach the wall and flood the strip, but the typhoon did not reach that.

JET PARADE

That the Navy is jet-plane minded can be seen from the following compilation of naval aircraft powered by jets alone or in combination with conventional engines.

FJ-1 (no name)—Made by North American Aviation. Powered by J-35 (TG-180), with 3,750 pounds thrust.

F6U Pirate—Made by Chance Vought. Powered by J-34 (24C), with 3,000 pounds thrust.

F9F Panther — Made by Grumman Aircraft. Powered by Rolls Royce *Nene* with 4,500 pounds thrust, or J-33 (I-40) with 4,250 pounds thrust.

FH-1 Phantom—Made by McDonnell Aircraft. Powered by two J-31's (19XB) with 3,200 pounds total thrust.

F2H Banshee — Made by McDonnell Aircraft. Powered by two J-34's, with 6,000 pounds total thrust.

FR-1 Fireball—Made by Ryan Aircraft. Powered by J-30 (I-16) with 1,600 pounds thrust and Wright 1300-hp. conventional engine.

FR-4 Fireball—Made by Ryan. Powered by J-34 with 3,000 pounds thrust and Wright 1300-hp. engine.

F2R Dark Shark — Made by Ryan. Powered by TG-100 turbo-prop and J-30 with 1600 pounds thrust.

P4M Mercator — Made by Glenn L. Martin. Powered by two R-4360 conventional engines and two J-33 (I-40) jets, producing 8,500 pounds thrust.

D-558-I Skystreak—Made by Douglas Aircraft. Powered by J-35 (TG-180) delivering 3,750 pounds thrust. Research plane.

D-558-II Skyrocket—Made by Douglas. Powered by J-34 (24-C) with 3,000 pounds thrust, and rocket motor made by Reaction Motors for acceleration use only. Research plane.

He Keeps a Date via Jet

Still on Radio Program 160 M. Away

He wasn't in two places at the same time, but Capt. Norman F. Garton, BAR at St. Louis, did almost that well —he appeared on a half-hour radio broadcast twice and was 160 miles apart at the two appearances.

His first broadcast was from the cockpit of an FH-1 *Phantom* at the McDonnell Aircraft Corp. plant in St. Louis over WTMV. He then streaked to Evansville, Indiana, where he was interviewed over station WGBF to close the half-hour program. The feat was broadcast through sponsorship of Electronic Research Corp., which opened new laboratories at Evansville the day of the broadcast.

GARTON TALKS IN MIKE BEFORE TAKING OFF

Believe *it or not, the gentlemen posed above are officers aboard the Kearsarge. Not CV-33, the aircraft carrier, but the old steam sloop of war, 3d rate, of Civil War days. The Napoleonic pose apparently was regulation in those days. The first Kearsarge made history by sinking the Confederate cruiser Alabama off Cherbourg, France, in 1864, later sailing around the Horn to the West Coast, Australia and to the Orient. This picture was taken by Mathew Brady, famous photographer.*

Whiting Supports Invasion

Field Acts as Carrier for Squadrons

NAS WHITING FIELD—This field acted as an "aircraft carrier" during *Operation Seminole,* serving as a base from which Navy and Marine air squadrons flew 1,055 flights to support the amphibious "assault" on Florida coastline.

Task force 81 ran up a total of 3,105 air hours without a single accident, an excellent record in any league. It was composed of CAG-3 from the *Roosevelt* and MAG-14, flying air cover for the Navy and Army near Panama City. Included among the pilots was Major Marion Carl, holder of the world's speed record.

Whiting Field had to accommodate 400 officers and men and nearly 200 planes of the Task Force, providing berthing and messing for the men and gas and oil for the two operating air groups.

Marine Air Group 14 reports its 72 F4U-4's flew 669 sorties. Line maintenance crews maintained 98.2% availability of planes for the occasion.

Navy Gets New Helicopter

Bell Trainer Has Removable Canopy

The Navy has procured models of the new training helicopter, the HTL-2, produced by Bell Aircraft Corp.

Outstanding feature of the new plane which is different from HTL-1 models which the Navy had previously is the split canopy which permits removal of almost half of the plexiglas cover, if desired, as shown in the accompanying photo.

For fair weather or specialized operations when an open cockpit is desirable, the doors and upper part of the canopy can be removed. The helicopter has rotor brakes, a two-blade rotor with stabilizer bar and can carry a useful load of more than 700 pounds. Two seats are side-by-side, with dual flight controls. It is powered by a 178-hp engine, cruises at 85 mph, and has a service ceiling of 11,500 feet. It is equipped with four-wheel landing gear, with parking brakes.

PICTURE SHOWS PLANE WITH CANOPY REMOVED

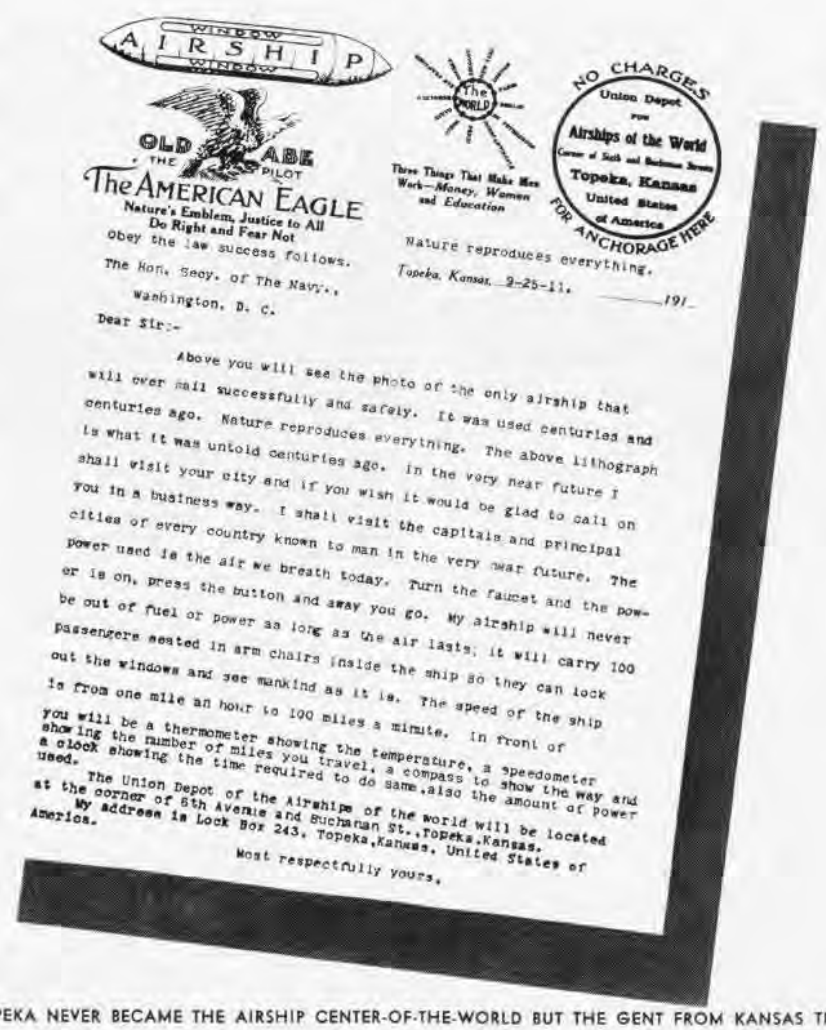
THE PROBLEM IS TO ASSESS MAN'S IDEAS

HAD YOU lived in 1490, during the life of Leonardo da Vinci and Columbus, what would your opinion have been on the shape of the world? On the future value of an aeroplane or a helicopter?

The Navy department receives its share of ideas from unknown idea men. Who knows, tomorrow some of these correspondents may be labeled "yesterday's men-of-vision."

For example, some day something will replace the atomic bomb. One writer feels the answer lies in, ". . . . some kind of gas inside a volcano that may come into contact with some kind of ore, and the heat from this ore, is the match that sets off the gas and causes the explosion" . . . *furthermore* . . . "a helicopter is the only thing that can discover this power . . . even after a volcano starts smoking, it may be several days before it erupts, and one may take pictures after it starts smoking. There are a few volcanoes around Hawaii and we have the Navy and helicopters and cameras to experiment with???" *Volunteers?*

The ideas presented in the two pictures on this page never developed. But they might have.



TOPEKA NEVER BECAME THE AIRSHIP CENTER-OF-THE-WORLD BUT THE GENT FROM KANSAS TRIED

In addition to ideas, there are suggestions, comments and questions. From a gentleman of the sandy wastelands comes this articulate comment:

". . . I wish I knew how, as a civilian (and without pay of course), I could stem the Mob Psychology. But what does a poor Desert Rat know about such theoretical things?" *Referred to Louis XVI of France.*

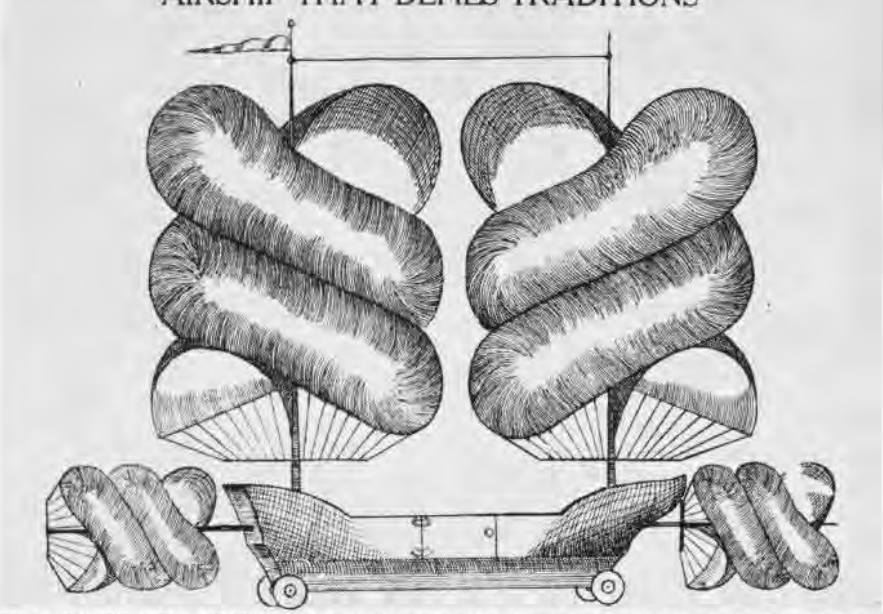
BACK IN 1911 an eager inventor received a letter from the Navy department not entirely in agreement with his views on the subject of airplanes.

"My letter must have conveyed a wrong impression, what I meant was, that no form of aeroplane embodying the principles of the kite can ever be made safe, or sane, by any, or all human agencies. Nor can it be made safe at any future time. Nothing but death awaits him who persists in its use. With the aid of the present aeroplane it will not take so very long to kill off all dissenters to these statements. Then I shall have a clear field for the aeroplane of the future, embodying the proper principles for the purposes of aviation." *How true!*

From a New Jersey correspondent:

"The Earth turns from west to east and if an airplane takes off from New York and heads toward the west, can it travel around the world in 24 hours? why?" *Why do you always have to ask 'Why?' One might as well stay in bed.*

AIRSHIP THAT DEFIES TRADITIONS



GREAT THINGS WERE EXPECTED OF THIS CONVOLUTED CONTRAPTION IN 1910 BUT IT DIDN'T FLY

DARK DANGER

THE AVIATION duty least likely to succeed from the point of popularity is night flying. However, those fly-by-night naval aviators—which pretty well covers the group—can be of stout heart, for *Technical Note No.* 13-47 points out that, "You don't have to be a Cat to see at night," or, "You, too, can be an Owl." The thing is *know* the problem and *utilize* that knowledge.

Of Number One importance is "dark-adaptation." Everyone is familiar with being temporarily blinded upon going from light to dark. Everyone also knows that after a brief period of orientation, things become clearer and in time, you can see fairly well at night. If you're flying, however, you can't afford the luxury of that blind period. For it comes at a most critical time—during the take-off and climb. The pilot must be at maximum efficiency every minute during a night flight, both in order to stay alive, and to be of any value on his mission. In the case of a night fighter interceptor, the mission may depend entirely upon the first ten minutes of flight.

The secret of night vision lies in the composition of the eyes. The eye is made up of "rods" and "cones." The cones are that part of the eye which focuses and provides day sight. At night they quit work. The rods give one side vision and provide 90% of night vision ordinarily and 100% during a very dark night.

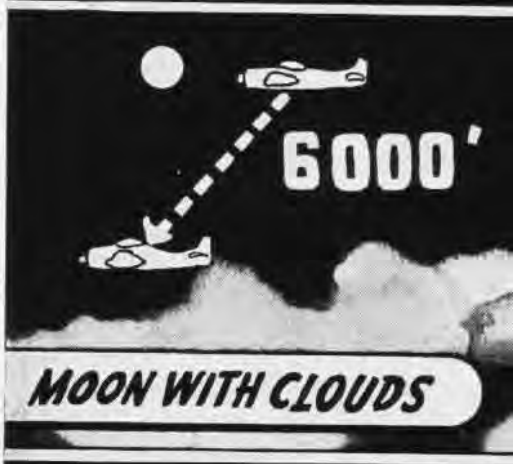
The rods have an extraordinary range of sensitivity and become up to 100,000 times more sensitive in darkness than in sunlight. The rate of "dark-adaptation," i.e. going from day sight to night sight, proceeds rapidly at first, then slows more and more. In seven minutes, sensitivity increases 100 times. Ordinarily good "dark-adaptation" can be obtained in half an hour.

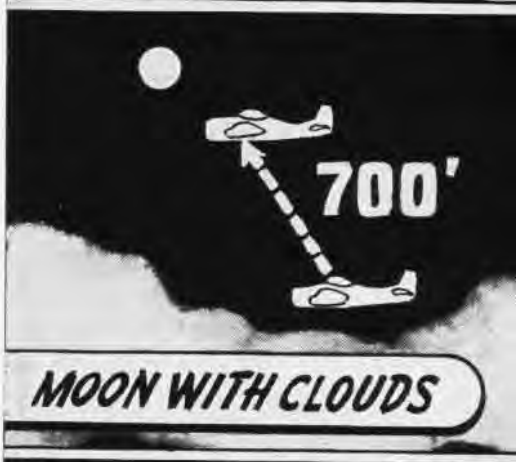
Practically all people are capable of good night sight, and anyone on a normal diet usually has no trouble in becoming "dark-adapted." "Dark-adaptation" can be obtained by sitting in complete darkness for 30 minutes, or by wearing the Navy's red lens "dark adaptor" goggles for a minimum of a half hour before a flight. And then bright light of any kind must not be allowed to strike the eyes until the flight is over, for though it takes a half hour to become "dark-adapted," the human eye becomes "light-adapted" again in a matter of seconds.

Oxygen is a critical factor in night sight and should be used continuously above 5000 feet. Contrast is important in picking up objects at night, so windshields, etc., should be clean and free of scratches. Binoculars are recommended as they enlarge the apparent size of the object.

Bright light should not be used in the cockpit prior to flight or during flight. However, cockpit lights should not be turned so low as not to be able to read the instruments. Reading an altimeter 1200 feet when it is actually registering 200 feet can be fatal very fast indeed.

Remember that night sight is largely dependent upon the "rods," or side vision, so scan continuously during a night flight to pick up targets. Don't look directly toward a target picked up, but just off the target to see it best. The chart to the right shows the wide variation in how far a person can see under night-flying conditions.





WHEN FLYING AT NIGHT

1. Don't night-fly until dark-adaptation is complete.
2. Maintain dark-adaptation by avoiding all light.
3. Glance—don't stare at lights even though red.
4. Know your cockpit and instruments blind-folded.
5. Keep your windshield clean and unscratched.
6. Look for targets "out of the corners of your eyes."
7. Scan continuously; move eyes over small areas.
8. Use oxygen on all night flights over 5000 ft.
9. Learn to identify and spot objects by contrast.
10. Keep physically fit and alert; never fly while tired.

FLY PAST--1932

THIS IS THE PICTURE NEWS RAN TO SEE IF ANY READERS COULD RECOGNIZE TIME AND PLACE

NAVAL AVIATION NEWS ran a picture in its December issue showing a swarm of biplanes in a slightly ragged formation, flying over some naval air station. It commented that it did not know where the picture was taken or what the planes were.

Digging its way out of an avalanche of phone calls and letters, the NEWS now is able to give the ungarbled word about that picture, reproduced here again. We did not require any box tops or jingles to enter the competition, but the results were enlightening.

"I believe the picture was taken about 1930 from the approximate center of Langley Field, Va. . . . the planes appear to be Army P-12C's or Navy F-4-B's," wrote C. L. Gerhardt, Qtm, Engineering Overhaul, Norfolk A&R.

Capt. C. T. Fitzgerald of the USS *Albemarle* (AV-5), said: "I'll take a shot at it. Place: NAS SAN DIEGO. Time: Summer 1933. Actors: VF wing of Aircraft Battle Force, VF-5, VF-2, VF-6, VF-1. Scene: During an aircraft review. The reason for the erratic formation was that the assembled F4B-2's and 4's were staggering along behind TG-2's, BM-1's (as usual). The leading squadron is VF-5-B, the *Red Rippers*, commanded by then Lt. Cdr. W. M. Dillon."

A former machinist's mate, now an Annapolis midshipman, who said he was "a fiend on old stuff recognition," W. H. Ragsdale, declared the planes "definitely were F4B's, probably -3's. The location, of course, is North Island (San Diego). The picture was taken from the field, looking south. The ex-LTA hangar on the left is a dead giveaway."

"I believe this picture was taken at San Diego when Amelia Earhart delivered a speech at that station," ventured Lt. D. C. Westfall, Communication Officer at NAAS Mustin Field, Philadelphia. "The aircraft shown are F4B-4 or 3's without belly tanks (Yep, they had 'em then). The 'ragged formation in spots' is probably VF-2 going into that special formation they used when passing in review on all aerial parades."

HERE'S TURNER'S PHOTO SHOWING CAMERAMAN

A gentleman in the "I was there" class showed up, complete with a photograph from his own snapshot album dated July 28, 1932, to prove his point. He was Lt. (jg) R. M. Turner of BuAer Maintenance, a Slc at the time with a beaching crew at San Diego. He declared the planes were BM's and F4B's from VF-2, the enlisted pilot's squadron, and VT-2 in the rear.

Turner remembered the occasion as a welcome for Amelia Earhart, the first woman to fly the Atlantic. One plane lost its top wing when taking off that morning. A PM-2 taking off the bay hit a Coast Guard cutter and killed the photographer and mech aboard. The strange part about Turner's whole story is that the picture he had in his album showed a photographer in action taking the picture which NANEWS ran. (See photo, left, with the cameraman squatting bow-legged holding his Graflex.)

The picture jogged another member of the 'I was there' group in Capt. W. V. Davis of NATC PATUXENT RIVER flight test division. He declared it was one of the monthly air parades at San Diego in 1932 or 1933. "The leading two squadrons VF-1 and VF-6 are F4B-4's, followed by the O2U-2's or 3's of the Scouting Wing.

"For your information, the following officers were very likely in that particular flight. At least they were in VF-6 at that time: Rear Admirals M. B. Gardner and R. F. Hickey and Captains H. F. MacComsey, A. Handley, W. A. Dean, D. L. McDonald, T. K. Wright, E. E. Colestock, T. P. Jeter, C. F. Coe, P. Foley, W. S. Butts, R. R. Ballinger, J. M. Lewis, W. T. Easton" and Davis himself.

"The aircraft are the old SU8's and at that time assigned to VF-2, the old AP squadron," according to H. A. Stocken, Administrative assistant to the CO at NAS PATUXENT. "The planes in front of the hangar are NY-1's used by operations for training." He also placed the picture at San Diego, spotting the old LTA hangar and natural gas tank as "recognition" features.

The Marines also took part in the aerial parade, in the belief of Col. F. H. Schwable, USMC at El Toro. He picked the planes as the "grand old F4B-4 fighter, with the planes in the rear with droopier-looking wings being BG-1's." He based his guess that Marines participated on the fact that there was a "total absence of aircraft on the ground around the old Marine Corps hangar at North Island."

Even a couple of civilian aviation magazine men took a crack at identifying the planes. Max Karant, editor of *Flying*, declared they were F4B's, the Navy counterpart of the then-current Army P-12. He added: "Surely some USN sharpie has spotted the field with the blimp hangar by this time."

THIS IS THE MUCH-DISCUSSED BOEING F4B-4

Robert McLarren of *Aviation Week* said the planes were VF-1 or VF-2 at North Island and were F4B-3's or F2B's. He even placed the time the picture was taken at around 1932.

A. P. Zamberlon, MTSgt, USMC (Ret), in San Diego, identified all the buildings as being at San Diego, and placed the time as late in 1932 or early 1933 and picked the planes as F4B-4's.

Out in Oakland, Calif., William T. Larkins, an ex-AAF man, claimed a 4.0 for recognizing the planes as F4B-4's with P&W Wasp R-1340-D engines of 550 hp. He also guessed the squadrons as VF-1, 2, 3, and 6. (How did he know?) He said VF's then had 18 fighters and one VJ but since the utility planes did not do formation flying the four squadrons that day had 72 planes in the air, plus six Marine F4B-4's from VF-10M. He recalled that the Boeings later were used as dive-bomber trainers for VB-2 and VB-5.

Lt. John L. Highfill, NATTC Pensacola, also spotted the location correctly. He said one officer in his squadron wanted the photograph made into a Christmas card design and the job fell to the photo lab where he worked.

Others who made correct identifications on the picture included George C. Lee, S1C, of FASRon 66, NAS OAKLAND; Lt. J. L. Armstrong, NAS PEARL HARBOR, and M/Sgt. John H. Spotanski, MCAS CHERRY POINT.

AS CLINCHERS for the whole discussion, NANEWS can present recollections of two men who not only were there but were in the front row. One is Capt. T. B. Haley, head of BUAER patrol plane design section. He was in VF-1 and was flying an F4B-3 that day.

Capt. Haley reports that VF-2, VF-3 and VF-6 were flying that day and perhaps units of VS-2, VS-3 and VMF-14.

"As I recall, Lt. Cdr. F. P. Sherman (now Vice Admiral) was senior squadron commander of VF-1. Others in VF-1 at about the same time included Bagdanovich, Renfro, Koepke, E. R. Peck, Olney, Jughans, Spangler, Oexle, Pixton, B. E. Moore, Kennodle, Arthur, Greenamyer, 'Strangler' Lewis, Seligman and others." Capt. Haley blamed the poor formation on bumpy air, low altitude, close formation and light and slow planes.

The second "clincher" was Vice Admiral F. P. Sherman, now DCNO (Operations), who was flying the lead plane that day as senior naval aviator of VF squadrons in Fighting Wing One. Planes of that wing, incidentally, are the only ones in the picture, according to Admiral Sherman, who said that they were F4B-3's. or -4's.

According to his records, the squadrons shown are VF-1, 2,3,5, and 6. He was CO of VF-1; A. M. Pride, now Rear Admiral and Chief of BUAER, commanded VF-3; W. M. Dillon, RAdm (Ret.), headed VF-5; and RAdm M. B. Gardner, now Commander Air Bases, 14ND, VF-6.

A LOOK back at the old files of NAVAL AVIATION NEWS, then called *BuAer News Letter*, showed the following item in the 1 August 1932 issue:

"The *Fly Past* at San Diego on July 28 was one of the greatest displays of naval air power that has ever been given. A total of 242 naval airplanes, ranging in size from the smallest single-seat fighters to the large multi-motored patrol seaplanes, carried out this evolution in a smart and thoroughly efficient manner. In addition, 73 planes of the First Bombardment Wing of the Army joined in the evolution, bringing the grand total of planes in this massed flight to 315.

"A *Fly Past*, in aviation, is simply an aerial dress parade. Its purpose, on this specific occasion, was a compliment to visiting members of the National Editorial Association, Olympic Sport Writers, and Foreign Journalists now present in Southern California.

"The large numbers of naval aircraft now in San Diego area results from the fact that annually, during the summer, all available aircraft units from the Battle Force are concentrated at North Island for a period of about two months."

Navy Fetes Air Force Day

Nome Sees Impromptu Aerial Display

VP-HL-7, ALASKA—The Navy demonstrated its cooperation in the new Armed Forces organization by participating in an Air Force Day air show on 1 August at Nome, Alaska. Three *Privateers* from this squadron, temporarily based at Nome, helped out the Air Force for the occasion, since it could muster only one plane.

Squadron pilots wanted to show their appreciation of hospitable treatment and fine cooperation extended by Colonel J. Bodle, USAF, (and incidentally demonstrate Navy flight ability). So the officer-in-charge of the VP-HL-7 planes proffered his unit's assistance. The Air Forces had only one OA-10 (Army version of the PBY-5A) of the 10th Rescue squadron.

Citizens of Nome and the local Army and Air Force personnel witnessed the show which, while not hair-raising, did surprise them, even though the maneuvers consisted of routine operational evolutions. Two of the three planes made short field take-offs; the *Privateers* then joined up and crossed the field at 500 feet in a V formation in fast cruise. They then climbed to 3,000 feet and did a breakup over the field from echelon. Several individual runs were made over the field with clearance to cross at 200 feet.

The whole show was climaxed when the last plane landed using a "closed field" approach which was perfectly executed. The whole show lasted only 30 minutes, but Air Force Day had been duly celebrated at Nome, with the help of the Navy.

In the *good old wintertime. Life is a little more rugged when days like this hit the fleet. The snow-filled catwalks and coated flight decks belong to the F.D.R. and the infectious grin of the man in the picture to R. T. Thompson, PhoM3c, who was snapping the scene.*

Marines Get Helicopter Unit

Squadron Do Experimental Training

The Navy and Marine Corps both had helicopter squadrons with the commissioning of the first Marine unit, HMX-1 at Quantico on 1 December. The Navy's VX-3 experimental squadron is based at Lakehurst.

Function of the Marine squadron, commanded by Col. Edward C. Dyer, will be principally experimental. They will use four-passenger Sikorsky HO3S-1 and the Piasecki HRP-1, which can carry 10 persons. Marines trained at Lakehurst before joining the squadron. Their mechanics went through schools at Lakehurst or at the Sikorsky plant at Bridgeport, Conn.

NAS TILLAMOOK—Certain signs indicate that a long and cold winter is due for the Tillamook area. The black bears are making advance preparations by eating the grease from exposed valves and fittings in the gasoline tank yard. An irate and inventive maintenance crew, aided and abetted by station personnel who are drooling at the thought of bear steaks, are making it increasingly dangerous to enter the tank area due to the many "Rube Goldberg" style booby traps.

NAVAL AIR RESERVE COMMISSIONS NAS AKRON

NAS MEMPHIS' CONTROL TOWER FLOAT WON PLAUDITS IN NAVY DAY AND VICTORY DAY PARADES

ON 14 JANUARY the newest air station in the nation-wide Naval Air Reserve chain was formally commissioned at Akron, Ohio.

The establishment of this station is in line with the Naval Air Reserve policy of bringing combat planes, rockets and guns to the individual Reservist and of locating training facilities near the place where he earns his daily bread and butter. In this way the Air Reserve makes it feasible for the Reservist to keep up his interest and proficiency in aviation without jeopardizing his everyday civilian occupations. Serving as it does the densely populated Cleveland-Akron-Youngstown-Canton area, the selection of Akron as the site for this station was a "natural."

In determining the personnel potential in this locality, a survey made under the auspices of Akron city officials and the Chamber of Commerce proved invaluable. These two groups, in fact, were most cooperative all along the line. In particular they smoothed the way for the Navy to lease the necessary operating facilities at the Municipal Airport where the station is located.

The administrative offices, ground training facilities, shops and hangars of the station are all under one roof. During the war this huge building, erected by the Defense Plant Corporation of the RFC, was used for the manufacture of FG *Corsair* planes. The Navy obtained the building at no cost through the War Assets Administration. It is located right on the airport.

Having its own plant and leasing use of the taxiways, runways and tower facilities of the Municipal Airport, the set-up at NAS AKRON is very much like that at NAS MINNEAPOLIS or NAS ST. LOUIS, which utilize the operating facilities at Wold-Chamberlain and Lambert fields respectively. Like Minneapolis, Akron will also provide plant facilities for the Surface Reserve.

Commanding officer of the station, and the man who has been chiefly responsible for getting it on an operating basis, is Captain Edward L. B. Weimer, USN. During the latter part of the war, he served as Chief of Staff for Fleet Air Wing Two and previously was CO of the *Pocomoke* (AV-9). His executive officer is Commander Waldo C. Grover, USNR, who formerly acted in the same capacity at NARTU ANACOSTIA. Officer billets at Akron are virtually filled and the recruiting program for enlisted stationkeepers, who are being drawn from the vicinity, is well underway. In fact the program is now being geared for the enrollment and training of Organized and Volunteer Reservists.

Present plans call for the immediate activation of one CVL air group and one basic CV FASRon. As the number of Organized Reservists increases, it is expected that the station will eventually have a CVB air group, a patrol squadron, a transport squadron, a Marine fighter squadron as well as a CV, a VP and a VR FASRon.

Of the approximately 75 planes, which eventually will be assigned to Akron, 32 are now being made available. These comprise 14 F6F's, 8 TBM's, 1 JRB, 2 SNB's and 7 SNJ's.

In view of the strides already made in organizing the station and of the interest which has already been shown in the program by Reservists and potential Reservists in the area, NAS AKRON has gotten off to an excellent start and undoubtedly will soon be playing an important role in both the community and the Naval Air Reserve.

NAS Memphis in the News

Enlisted men at NAS MEMPHIS designed and built a float which received much public acclaim in two patriotic parades which were recently held in Memphis.

This float was a replica of the NAS control tower and landing field. It was

DENVER'S MARINE FIGHTING SQUADRON 236 CHALKED UP FINE RECORD AT EL TORO MANEUVERS

WAVES MYRTETUS AND DOWNEY PLAN REUNION

complete down to international markings on the runways and the tetrahedron. As the float moved down the street, *Hellcat* models, attached to the display, circled the tower.

To add to the illusion, voice communications between plane pilots and control tower operators, against a background of authentic plane noises, were transcribed and played over three small loudspeakers mounted on top of the float. From time to time, brief announcements concerning the Air Reserve program were interpolated.

On 23 November the GCA unit at NAS MEMPHIS also crashed into the news with a dramatic "rescue" of a Guatemalan plane with ten persons aboard.

The plane, a T-1 (R4D), was enroute from Washington to Memphis municipal airport on the first leg of a flight to Guatemala. Over Memphis bad weather was encountered and the pilot, already short of gas, was unable to determine his position. Memphis air traffic control was in radio contact with him, but had no way of helping him get located. Accordingly ATC notified Lt. Cdr. T. L. LaPorte, officer-in-charge of the GCA unit about the plane's plight. Forty-five minutes later, Major Ponciano of the Guatemalan Air Force safely set the plane down on the NAS field. It was his first GCA landing.

Wave Reunion at Willow Grove

On 7 December NAS WILLOW GROVE sponsored a reunion of all former WAVES in the Fourth Naval District. This event climaxed Willow Grove's drive to interest these WAVES in the Naval Air Reserve Volunteer program.

Some 500 turned out for the occasion, which lasted from 1500 to 2400. They enjoyed a tour of the station, a roast turkey dinner, a dance with music by a five-piece band (provided "for free" by the American Federation of Musicians) and finally a buffet supper served at midnight. The Philadelphia Navy Base glee club, under the direction of Lt. Mabel Hughes, added the proper lyric note to the activities.

A Volunteer Reserve officer at W. G., Lt. (jg) Jean Wynkoop was in charge of the arrangements.

Net result was the signing up of 50 additional WAVES in the V-10 program. This makes a grand total of some 70 WAVES who are now making a fine record at W.G.

We "Dip Our Wings"

To NAS ATLANTA—*on the commissioning of the AVU(A) at Birmingham which took place on 15 November.* Rear Admiral Wagner participated in the ceremonies along with the commanding officer of the station, Captain Neale. Miss Peggy Elder ("Miss Alabama") added color to the occasion by christening an SNJ which had been taxied up to the speaker's stand. Lt. Cdr. Richard B. Carlisle took over as CO of the unit. Also shown in the picture are Capt. Carrington, Cdr. Cooper and Cdr. Gibson (all standing on the right).

To NAS MIAMI—on the quick and competent treatment rendered by medical personnel which saved the life of an injured civilian pilot. Called to nearby Opa Locka field, where the student civilian pilot had had a mid-air collision with another civilian plane, Cdr. Rickard and a Reserve ambulance crew found the first pilot hanging by his belt in his overturned plane. He had a severed jugular vein and a fractured right leg. They gave him emergency treatment on the spot and again at the station sickbay. That same afternoon the young pilot was able to be transferred to a veteran's hospital and at last report was on his way to recovery. (The pilot of the other plane was uninjured.)

To NAS GLENVIEW — on the work of VP-ML-54 personnel. On drill days they are now running their own line, taking over all operations from "yellow sheeting" of squadron aircraft in the morning to securing the last tie-down in the evening.

Station Round-Up

NARTU SEATTLE—Pooling their efforts in regard to the Volunteer Air Reserve program, Capt. Greber and Cdr. Jones, naval aviator assigned to the Thirteenth Naval District, recently visited Corvallis, Klamath Falls and Spokane. Much interest and enthusiasm in the Volunteer Air program was found among those contacted.

NAS DENVER—Final returns on the training period, held at El Toro in September, show that VMF-236 of this station walked off with two records. With a 98% average, this squadron led the list for aircraft availability. VMF-236 pilots also flew the greatest number of hours per man, averaging 39.4 hours apiece.

NARTU JACKSONVILLE—Nine members of the football squad at Bolles Military School recently signed up with the Air Reserve. The gridders waited for the 17th birthday of Tom Priestman, son of the NARTU CO, so that they could join en masse. Sports pages heralded the event.

NAS SQUANTUM—During November nine O. R. pilots flew a total of 135.6 hours, ferrying planes to and from California and Florida. The experience gained was priceless.

NAS ST. LOUIS—Seamen from the recently graduated "boot" classes have served as body bearers, firing squad and bugler, in connection with 11 funerals of World War II Dead who have been returned to this country.

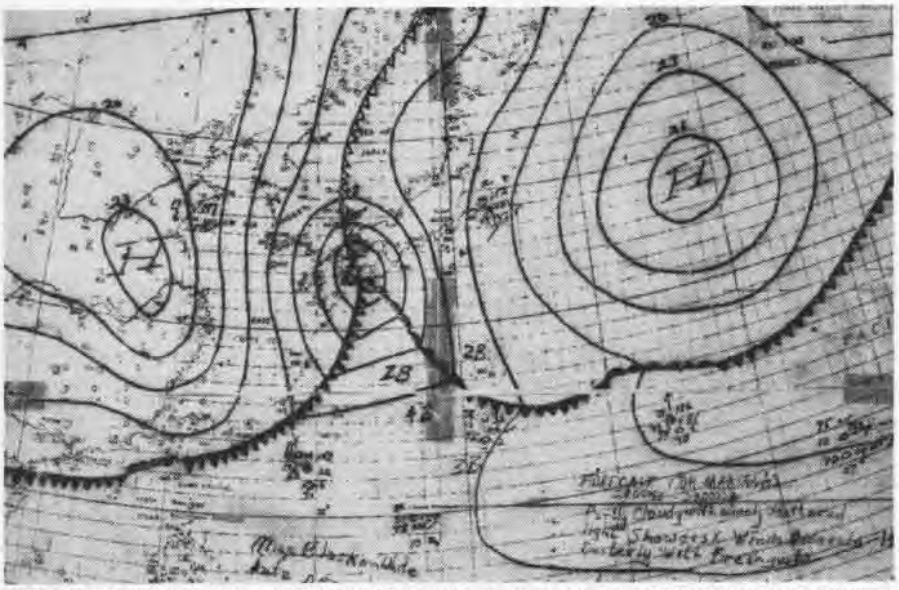
NAS NEW YORK — Fighter and attack pilots of CVEG-83 piled up their greatest total of flight hours during November, with the latter averaging 10.5 hours per pilot. The VF squadron took advantage of the good weather to make oxygen flights at 15,000 feet over the field.

NAS NEW ORLEANS—An SNB-1 has been equipped with an NR-1 mount for mapping of facilities in the district; a K-17 camera is being used. This aerial mapping work is being combined with the training of O. R. personnel.

NARTU LAKEHURST—ZP-51 aviator allowance is now 100% filled.

NAS OAKLAND — About 1,000 balloons, carrying a Reserve recruiting message, were released over the bay recently and drifted in over Oakland. A local radio station paid for the printing of the attached cards and carried announcements on several programs.

NAVY OFFICERS AND 'MISS ALABAMA' TAKE PART IN COMMISSIONING OF BIRMINGHAM AVU (A)



RADIOPHOTO PROCESS SENDS ACTUAL WEATHER MAP FROM GUAM TO WASHINGTON IN 20 MINUTES

Weather Maps on Tap

A NEW twist to the theory that one picture is worth a thousand words comes from the aerologists these days. If the picture is a radiophoto or facsimile of a weather map, it's a big improvement over sending out a coded analysis of the same information that the map shows. The improvement is threefold: in accuracy, in completeness, and in time and work saved.

A radiophotographic network has been set up between long-range transmission stations at Guam, Pearl Harbor, San Francisco, and Washington, whereby up-to-the-minute pictures of the weather from the China Coast to Washington, D. C., can be made available within 20 minutes. With the map sections placed together in their proper sequence, a comprehensive view of the weather situation is ready for study at all receiving stations.

The system of radiophotograph transmission of weather maps is the Navy's contribution to a joint program for establishment in the United States of a national landline facsimile network by which Air Force, Navy and Weather Bureau stations receive weather maps and auxiliary charts transmitted from master analysis centers. The joint analysis center (WBAN) at Washington, D. C., concentrates the best analysts of the three services for the work of disseminating accurate, timely, and comprehensive information on weather developments.

With normal west-east movement, the weather at Guam one day develops and produces the weather at Pearl Harbor several days later. Although modified along the way, the same weather eventually moves over San Francisco and on toward the East Coast of the United States.

Former methods of spreading weather information are adequate for surface vessels, but are not rapid enough nor complete enough for proper briefing of pilots before long airplane flights. The complete picture by radiophoto eliminates lack of coordination between adjoining sectional maps. This lack of coordination has been troublesome in the past on flights such as that of the record breaking *Truculent Turtle*.

Prior to this development, weather information was sent out by Morse code —a summary rather than complete coverage. Poor transmitting conditions can garble such encoded data badly. Under the same conditions the photo of the map comes through clearly enough for accurate analysis. An isobar line, for example, may show up as a broken line, but there is no garbling. The time saving, also, is tremendous; inasmuch as the process of encoding, transmission, decoding and transferring the necessary information to charts entailed at least an hour's work to describe one weather condition.

PEARL HARBOR GETS PICTURE OF U. S. WEATHER

In the radiophoto process, the map is placed on a drum where it is photoelectrically scanned. As the drum revolves, tiny sections of the map, each 1/100th of an inch square, appear before the photoelectric eye in the form of variations in light intensity, black surfaces reflecting the least light, white surfaces giving maximum reflection, and all light originating from a fixed source of light directed on the map by means of lens and prisms.

The light and dark impulses received by the photoelectric cell are converted instantaneously to electrical impulses which are used to key a standard radio transmitter. At the receiving end, the procedure is reversed. The radio waves are converted back to electrical pulses to generate a varying light beam focused on a film of photographic paper mounted on a drum synchronized with the transmitting machine. If direct recording visible copying is desired, the incoming signal generates a varying current through a stylus resting against

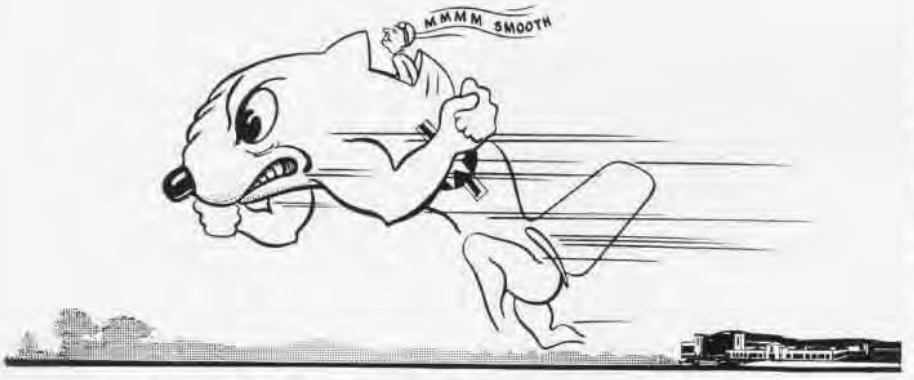
CODING MAP ANALYSIS IS LONG, EXACTING JOB

special recording paper on the rotating drum, varying currents causing this paper to burn selectively to reproduce black and white copy corresponding to the transmitted map.

Within a half hour from the time transmission is started, the completed area map is received and ready for use, with all possibility of human error in the transcription, translation or transmission eliminated.

Thus, swiftly and efficiently, data gathered from far and near are relayed from the Navy Department, and, in turn, pilots calling Aerology for the latest word on the weather receive dependable information for flight plans.

TECHNICALLY SPEAKING



BETTER THAN NEW

DURING the war the Integrated Aeronautic Program operated to put new aircraft in combat squadrons in order to have our best and most suitable aircraft where they were needed most. Such aircraft as were returned from forward areas were reconditioned in A&R Departments and supplied to forming squadrons for use during the formative period and to training activities. Very little overhaul, in the proper sense of the term, was accomplished.

However, when wartime procurement was stopped the program was changed, because of the need for economy, to provide two or more terms of service in fleet squadrons for all aircraft prior to their being sent to training. Since the total service-life of the airplane was thereby extended, it was necessary to shift from aircraft reconditioning to aircraft overhaul. Essentially, the reconditioning process was one of replacing worn or damaged aircraft components with new ones. The overhaul process, on the other hand, involves complete teardown of the airplane and the inspection, repair, and refinishing of each individual part.

To overhaul aircraft efficiently and economically the A&R Departments have had to adapt modern production methods to the overhaul process. Essentially, this means that parts removed from the airplane are overhauled in blocks of identical parts and are returned to a supply storeroom for issue to the assembly floor. The fuselage, after complete inspection and overhaul, is brought into the first spot or station on the assembly line, and the airplane is completely assembled and checked as it progresses up the line. In this part of the process the parallel between modern aircraft production plant and the A&R establishment is exact.

Since identical parts are overhauled in blocks over a quarterly period, it is apparent, and essential to the process that the individual parts lose their identity in the sense of being tied to some particular airplane. As a consequence, the airplane as finally finished may have parts from a dozen airplanes or parts that have been withdrawn from new stock. Therefore, it is not only conceivable but probable that a third-overhaul airplane may have first-overhaul wings, new surfaces, and second-overhaul landing gear or any other combination of parts.

AT FIRST blush this may appear to be a disadvantage; on the contrary, it is a big advantage to those of you who must operate these airplanes. This procedure makes it essential that each airplane, and all of its components, be as good as new when it is finally flight-tested and certified as ready for delivery. Each individual part, whether new or overhauled, will have met the same exacting inspections, which are identical to those applied by the original manufacturer or, in many instances, even more stringent requirements resulting from service experience.

In addition, current changes and bulletins are installed to bring all components up to the standard required by the operational forces. Although certain aircraft types do not lend themselves to the production line methods, described above, such methods may be employed in the assembly of various sub-components. These aircraft meet the same exacting specifications and service standards, and since they, too, incorporate latest changes and modifications, they justify to no less extent the complete confidence of the pilots.

As the overhauled aircraft comes off the final assembly line it is tested in flight by trained test pilots. Necessary adjustments are made and the plane is ready for delivery to the fleet. Actually, it is the boast of the overhaul establishments that the airplane is better than new, that discrepancies of the original manufacturer frequently are picked up and corrected. Such fleet reports as BUAER receives confirm this belief.

From this discussion it is evident that the log book entry as to the number of overhauls through which a particular airplane has been put is largely fictitious. An airplane is equally excellent whether new or overhauled one or more times. So don't get the feeling that an "old" airplane in the sense of one which has had several overhauls is "old" in the sense of not being thoroughly reliable and suitable for combat.

To answer one last question which might plague you, each airplane when finally considered to have reached the limit of its useful life is carefully disassembled and each part is considered for scrap or salvage as an individual part. Thus, those parts of the airplane which are newer than the airplane's age might indicate and still are usable are restored to service in a newer plane.

PERHAPS you may have some doubts as to the efficacy of this process; whether you have or not, it would be reassuring and instructive to visit an A&R and see for yourself how the system works. Most A&R Departments are ready and more than willing to give you the fifty-cent, dollar, or five-dollar tour, depending on how much you wish to learn and the time you have available.

Next time bad weather grounds you, take a trip through the organization which exists only to give you the very best aircraft it can for the job you have to do. Your visit will improve the morale of the A&R personnel through your show of interest and will help to insure that you continue to get the best. You, too, will then be convinced that the overhauled airplanes you receive for flight are, in fact, *better than new.*

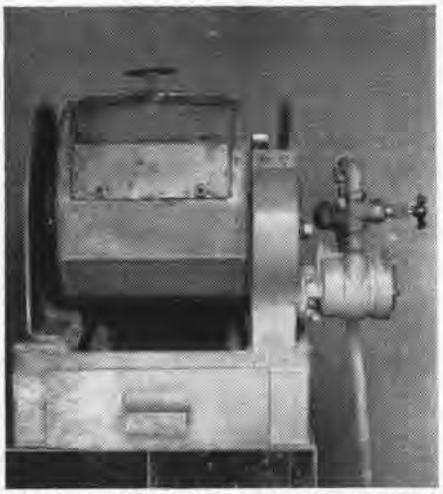
DEBURRING BY THE BARRELFUL

NAS NORFOLK—The A&R department has eliminated many hours of tedious hand-deburring of small metal parts by the manufacture and use of a small machine which incorporates an improved adaptation of an old mechanical tumbling barrel principle.

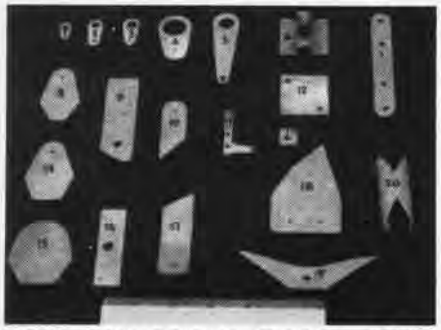
This machine, manufactured from salvaged materials, consists of a welded polyhedron shaped steel barrel, approximately 10" in length and 12" in diameter. It is pneumatically rotated at controllable speeds by a salvaged aircraft Pesco #207 vacuum pump at an air pressure of 90 psi.

The barrel is a symmetrical container having 12 sides, the inner surfaces being flat and free from baffles or other obstructions. Use of a small barrel having a greater number of flat surfaces gives a more thorough deburring attrition process, because of the increased tumbling action created by the irregular motions of the flat inner surfaces.

Rejected emery wheels, heretofore discarded, are salvaged, broken into small pieces and constitute the active abrasive agent used in the tumbling barrel deburring process.



TUMBLING BARREL IS USEFUL FOR DEBURRING



TYPICAL PARTS DEBURRED BY BARREL METHOD

Although the tumbling barrel is constructed in such a manner as to afford equal results with either the wet or dry attrition process, it has been found that the dry process is the more expeditious and practicable method, since only the dry emery abrasive is required to complete the job and also because the emery is easily separated from the completed deburred parts.

This improved method of deburring has resulted in greater productivity, with fewer man-hours required, better quality of the product, the utilization of abrasive materials which in the past were discarded.

Photo No.	*Type Aircraft*	*Manufacturer*	*Name of Part*	*Part No.*
1	All types	NAS Nor	Tab, Bonding	4B56-1
2	All types	NAS Nor	Tab, Bonding	4B56-2
3	All types	NAS Nor	Tab, Bonding	4B56-3
4	TBM	Grumman	Plate, Rectifier Rack Assembly	600851-20
5	F6F-5	NAS Nor	Arm, Assembly and Details for SW Heater	7D778-5
6	TBM-3	Grumman	Bracket, Lock Installation, GE Auto Pilot	51433-14
7	F8F-1	Grumman	Support, Anti-Blackout Installation Oil Separator	54602
8	TBM-3	Grumman	Plate, Rectifier Rack Assembly	600851-15
9	TBM-3	Grumman	Plate, Support Assembly, Periscope Mount	31D493-3
10	TBM-3	Grumman	Plate, Rectifier Rack Assembly	600851-14
11	P&W Eng.	Gen. Elec.	Stop, Ignition Harness	8696088
12	TBM-3	Grumman	Plate, Lock Installation, GE Auto Pilot	51433-15
13	F6F-5	NAS Nor	Reinforcement, Assembly and Details for SW Heater	7D779-3
14	TBM-3	Grumman	Plate, Rectifier Rack Assembly	600851-16
15	TBM-3	Grumman	Plate, Rectifier Rack Assembly	600851-18
16	TBM-3	Grumman	Plate, Door Assembly	20288-1
17	PBM	Martin	Brace, Oil Cooler Support	162F58115-1
18	TBM-3	Grumman	Plate, Rectifier Rack Asembly	600851-27
19	F6F-5	Grumman	Clamp, Air Duct Sleeve, Power Plant	26864-2
20	P&W Eng. R-2800	P&W	Fishmouth Sleeve, Oil Seavenger Pump	Bull. 93, Fig. 2

Marines Get Chute Failures

MCAS CHERRY POINT—The parachute department of VMF-122 recently encountered a failure of the pilot chute to open during a routine bench spill and repack. Further investigation revealed that bench spills on certain previous monthly repacks had resulted in at least two failures.

The malfunction was found to be caused by the spring arms of this new-type pilot chute when they wedged under the protective flap of the main parachute pack. For this wedging to occur, it is believed that during normal use of the seat service chute, the pilot chute tends to turn within the pack.

▲ ***BuAer Comment*—This item of equipment has been the subject of several recent RUDM's and BuAer now has underway with ASO action which will remove all these pilot chutes from service and replace them with the umbrella-type.**

Record Teaches Gun Terms

The Special Devices Center, of the Office of Naval Research, has procured a quantity of aircraft gun familiarization recordings describing the operation of the 20 mm. short barreled cannon.

These recordings are used in conjunction with the sectionalized gun models, Device 11-D-4C, and are an additional aid in familiarizing gunnery personnel with the operation, and construction of the gun. The instructional recordings give a nomenclature "tour" of the gun, then tell the student to turn on an electric motor which operates the sectionalized gun in slow motion. Pauses in the records allow the student to locate and identify the various parts of the gun and follow its mechanical action during the firing cycle. The gun itself is cut away in such a way as to show the integral parts.

The recordings, packed in individual albums, are 78 rpm, 12-inch vinylite transcription and are semi-flexible to preclude the possibility of breakage. These records come in four part sets.

EYES, EARS BOTH WORK TO LEARN GUN TERMS

Many naval reserve stations are now setting up training programs which will include the familiarization with the 20 mm. gun. Inasmuch as these familiarization records are on the allowance lists for Naval Air Reserve Training Units they should be a valuable asset in training.

These recordings, and others pertaining to the 20 mm. long-barreled cannon and the .50 cal., Device 11-D-4, can be obtained from the Special Devices Center, Sands Point, Long Island, New York. The long-barreled 20 mm. cannon and the .50 cal. sectionalized guns operate in the same manner as the short-barreled 20 mm. gun.

Mass SNJ Evacuation West

Naval Air Transport Service has about finished the job of ferrying 710 SNJ's from NAS HOUMA, La., and NAF GLYNCO, Ga., to NAS LITCHFIELD PARK, Arizona for storage.

The job started on 5 September and two months later 474 or 66.9 percent had been ferried west, with only 12 mishaps. Of these 12, six had to land in open country due to propeller oil seal failures, one had a ground loop, two overran the runway on take-off and three were caught in a thunderstorm and had to land in open country.

It is significant that of the 12 incidents, six were due to material failure, six to pilot error, and that all six pilots were ensigns. The movement west was slowed down by winter weather and the fact the SNJ's in better repair were ferried first.

WING SLING CAN BE ADAPTED FOR MANY USES

Sling Speeds Wing Changes

NAS QUONSET POINT—A locally designed and manufactured sling has speeded wing changes and repairs at NAS QUONSET POINT.

Simplicity of design, ease of operation, and low cost of manufacture have made this sling an indispensable aid in all wing removals and installations.

The purpose of the sling is to increase shop efficiency and decrease the number of man hours required to turn a wing 180°. Prior to the design of this sling by Vincent Klem, Leadingman Metalsmith at Quonset A&R, as many as 10 men had to be mustered for a brute strength lifting operation. With the use of the "Quonset Wing Sling" a small wing can be mounted on a plane by two men. Four men can accomplish the removal or fitting of large wings, such as those on R4D's, PV's, R5O's, with ease.

Operation of the sling is relatively simple. It is adjusted to the center-of-gravity point on the wing by the trial-and-error method. When this point is found, a couple of men steady the wing, while a third man operates the crane.

The accompanying photo shows the designer inspecting the strap assembly which later was improved by the addition of double rollers devised to prevent doubling or folding of the belt at point of suspension.

The force imposed on the leading and trailing edges cannot damage the internal structure of the wing, which is turned on its ribs, with an angle turning bar installed on the trailing edge. The sling is placed approximately 12 feet from the butt end of the wing. Since the wing is in a horizontal position, there is no danger of slippage. One man is placed at the tip and two men at the butt end of the wing to turn it on the belt.

Activities interested in this equipment should get information from NAS Quonset. Their drawings: "Wing Turning Device"—P-3036, and "Roller Strap Device"—P-2979, give details of construction.

ACAG-11—This air group is now operating aboard the USS *Valley Forge*. Personnel of the ship and the air group are proud of the safety record chalked up during the first two months of their operations together. Only one major accident has occurred—an SB2C barrier crash in which no one was injured.

Marines Aid Car Mechanics

MCAS EL TORO—This station recently put into operation a special services garage where all military personnel may overhaul and repair private automobiles during their off-duty hours.

Facilities of the garage include a trouble-shooting section, a body and fender section, general overhaul, lubrication pit and wash rack. A well-equipped tool room is located in the building where necessary repair implements may be checked out for use in the shop.

BOOKS

Airplane Design. Karl D. Wood. 8th Ed. Univ. of Colorado Bookstore, 1947, $6.00 (Timely in presenting hitherto confidential data of NACA and other government sources.)

Elements of American Air Power. Aircraft Industries Association, Washington 5, D. C., 1947. (A 249-page pamphlet comprising the presentations of Aircraft Industry before the President's Air Policy Commission.)

Wind-Tunnel Testing. Alan Pope. John Wiley & Sons, Inc., 1947, $5.00.

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Axial Flow Compressors Are Simple. J. Austin King. *Aero Digest*, Dec. 1947, pp. 42-45, 105, 106, illus.

Overhauling Jets for the Air Force. Mather M. Eakes, Jr. *Aero Digest*, Dec. 1947, pp. 54, 55, illus. Caring for turbojets at jet engine modification and overhaul center, Tinker Field, Oklahoma.

Trends in Aircraft Power Plants. Milton U. Clauser. *Aeronautical Engineering Review*, Nov. 1947, pp. 12-17.

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I Learn About Stalls. William Winter. *Air Facts*, Dec. 1947, pp. 43-49.

Projects Squid Probes Pulsejet. Robert McLarren. *Aviation Week*, Dec. 1, 1947, p. 26. Five eastern universities hold Navy research contracts.

Unique Laboratory Speeds Jet Engine Development. *Aviation Week*, Dec. 1, 1947, pp. 30,31, illus. Westinghouse test facilities for turbojet components.

Navy Reveals Design Analysis System. *Aviation Week*, Dec. 8, 1947, p. 22.

The Aviation Week. *Aviation Week*, Dec. 15, 1947, p. 7. Editorial analysis of the Navy and aviation.

Navy Reveals Gumman Jet Fighter. Robert McLarren. *Aviation Week*, Dec. 15, 1947, pp. 12, 13, illus. The XF9F-2, *Panther*.

Reverse Pitch Props Offer Safety. Albert E. Smyser, Jr. *Aviation Week*, Dec. 15, 1947, pp. 33, 37.

Dependable Transport. *Aviation Week*, Dec. 15, 1947, p. 66. Evaluation of NATS.

The Case for Shoulder Straps. F. R. Stout. *Flying*, Jan. 1948, pp. 33, 34, 85, illus.

You and Your Altimeter. Robert W. Prescott, Jr. *Flying*, Jan. 1948, pp. 48, 49, 72, 74, 76.

Fuels for Jets. E. L. Klein, Power Plant Div., BuAer. *SAE Journal*, Dec. 1947, pp. 22-28.

Improved Performance Claimed for Composite-Powered Plane. Ben T. Salmon. *SAE Journal*, Dec. 1947, pp. 34-39, 54.

Machines Tailored-to-Man Kindle New Engineering Design Concepts. Dr. Leonard C. Mead, BuAer Special Devices. *SAE Journal*, Dec. 1947, pp. 40-46.

Practical Helicopter Challenges Engineer. F. N. Piasecki. *SAE Journal*, Dec. 1947, pp. 55-58.

Jet for the Fleet. Robert Franklin. *Skyways*, Dec. 1947, pp. 18-20, 42, 44, illus. Round-up of Navy jet planes.

Job Opportunities in Aviation. Alice Rogers Hager. *Skyways*, Part I, Dec. 1947, pp. 34-39, 54, 56, 58; Part II, Jan. 1948, pp. 40-43, 53-55, illus. Detailed, comprehensive study of opportunities and required qualifications in all phases of aviation.

Skystreak Skipper. Victor Boesen. *Skyways*, Jan. 1948, pp. 18, 19, 46, 48, illus. Gene May, Douglas test pilot.

Up from the Bilges. *Time*, Jan. 5, 1948, p. 23. Adm. Radford's appointment as VCNO.

THE MYSTERY OF THE MISSING BOOKS

IF YOU go to a football game, you look at the program to find out the weights of the players. If you fly a multi-engine plane you look at the *Handbook of Weight and Balance Data*—if there is one.

That's where the rub is coming in, says BUAER weight control branch. Too many activities are sending in planes to A&R shops for overhaul without their handbooks accompanying them. The shop may change things around so that the center of gravity is someplace else, but cannot make that change known by entering it in the weight and balance handbook. Consequently, the next pilot who flies it won't know the CG has been changed and conceivably could get into a bad fix when he gets up in the air.

Many informal and some formal complaints have come to BUAER from A&R's about the fact that planes ferried in for overhaul don't have these handbooks aboard. Technical Order 82-45 says specifically they must be aboard, along with the balance computer (load adjuster). Calls for replacement on the computer indicate some stations are forgetting to include those too.

BUAER is including the requirement in ACL 110-47, *General Rules and Procedures for Ferry Flights of Naval Aircraft*, that the data book, ANO1-1B-40, and computer be on all applicable aircraft.

Replacement of the books and adjusters represents considerable expenditure of time and expense, much of which can be avoided easily. The fewer of these BUAER has to buy, the more money will be available to buy gasoline and keep up planes so pilots can fly them. It is all simple mathematics.

AIR FREIGHT SAVES $30,000

Transportation Division of Bureau of Supplies and Accounts, in conjunction with Bureau of Aeronautics Representative at St. Louis, Missouri, recently developed that aircraft turrets could be packaged and shipped via commercial air instead of surface transportation, resulting in a saving of approximately $30,000 in costs and also reducing the transit time approximately 75%.

Contract NOA(S)-8665 provides for the procurement of 67 turrets from McDonnell Aircraft Corporation, St. Louis, Missouri, for shipment to the Bureau of Aeronautics Representative, Burbank, California, for use in the P2V program. The comparative costs for packaging and shipping via air versus surface transportation are as follows:

NUMBER UNITS— WEIGHT	AIR	SURFACE
Number of Units	67	67
Weight Per Unit	641	1,531
Total Weight	42,947	102,577
PACKAGING COSTS		
Per Unit	$ 126.39	$ 560.13
For 67 Units	$8,468.13	$37,528.71
TRANSPORTATION COSTS		
Per Hundred Pounds	$ 13.00	$ 6.36
Per Unit	$ 83.33	$ 97.37
For 67 Units	$5,583.11	$ 6,523.79

RECAPITULATION OF COSTS

Packaging for Surface	$37,528.71	
Packaging for Air	8,468.13	
Net Saving		$29,060.58
Transportation by Surface	6,523.79	
Transportation by Air	5,583.11	
Net Saving		940.68
TOTAL SAVING		$30,001.26

In the interest of conserving Navy funds and materials and in expediting shipments of aeronautical items, the Chief of the Bureau of Supplies and Accounts has requested the Chief of the Bureau of Aeronautics to have other contracts reviewed to determine, where it appears an extraordinary amount of packaging is required for surface transportation, to what extent additional economies might be effected.

F8F Modification Underway

NAS NORFOLK—A high priority F8F fuselage overturn structure modification program is underway at the A&R department. This modification became necessary when it was discovered that under certain conditions the present overturn structure did not provide the pilot with adequate protection.

To solve this problem BUAER Service Change No. 36, Fuselage-Overturn Structure, for F8F aircraft was developed. The change involves the installation of a fuselage overturn structure and a redesigned crash cap, developed to assure maximum protection for the pilot in case the aircraft should overturn.

Incorporation of this change involves removal of the cabin hood, baggage compartment equipment, cockpit equipment, main fuel tank, cabin fairing, deck installation, in order to provide a working area for the required installations. A modified production line technique is being used with the work divided into three stages—disassembly, modification, and reassembly — separate groups handling each stage.

Wear Masks on Repair Job

VMF-211, CHINA—Engineering personnel of this squadron were forced to wear oxygen masks during a recent service change involving modification of the firewall to prevent failure of self-sealing fuel cell vapor return fittings.

In making this change, personnel must go into the main fuel cell. One near fatality occurred when one man collapsed from inhaling gas fumes. To prevent such accidents, all personnel entering the main fuel cell now are equipped with an oxygen mask connected to a diluter-demand regulator. In addition, a safety watch is placed on the man working inside the cell to insure prompt action if trouble develops.

Antenna Fouls Plane Surfaces

MACG-1, CHERRY POINT—This air control group recommends several modifications to facilitate use of trailing antenna without fouling JD-1 control surfaces in flight.

During a recent flight it was necessary to use the full antenna length. When the technician tried to finish reeling it in, he was unable to wind in the last 27' of cable and reported to the pilot he thought the indicator was at fault.

The pilot experienced no unusual difficulties in trial maneuvers and also assumed it to be at fault and that all cable had been reeled in. After landing, it was found the 27' of antenna cable had tangled around the right stabilizer and elevator and could have caused a bad accident.

The group recommended that the present trailing antenna installation be modified by replacing the reel R-16-R 3498 inside the fuselage immediately aft of station 474, the antenna to trail through a fairlead from the aftermost point of the fuselage. It also suggested that the antenna weight be replaced by a small windsock similar to R-16-RCA-MI-5911-5. The antenna would be connected to the transmitter by a grounded coaxial cable.

▲ ***BuAer Comment*—Relocation of antenna reel aft is not favored because: 1. Fouling of tow target cables may result if the antenna is inadvertently streamed. 2. The long coaxial cable necessary for connecting transmitter to the antenna would produce a large loss in radiated power besides requiring matching devices properly to couple transmitter to antenna over the frequency range involved.**

It is recommended that operating activities reduce flying speed during process of retrieving the trailing antenna, as flight tests have shown this reduces considerably the possibility of antenna fouling the tail surfaces. Also replacement of antenna weight with a small windsock should reduce buffeting and whipping. Patuxent concurs in this latter idea.

Zipped *into tailored, form-fitting coveralls, Navy planes will be well protected during short-term preservation, won't need attention while thus bundled up, and will be ready to fly on short notice. Zipper bags, with desiccants inside, seem to be the answer to the search for a faster, more effective method of short-term preservation (about 90 days). Plastic-coated fiberglass fabric provides a light, strong, pliable cover, resisting abrasion and moisture. The entire plane will be protected, whereas the present system takes care of only the critical components through use of oil, grease, and preservative compounds. The new method will require approximately one-fourth the man-hours now needed to complete the cycle of preserving a plane and then taking it out of preservation and placing it in flight readiness. Short-term preservation is important when planes are being shipped or await overhaul. Note desiccant bags in engine cowling; observation window and lifting sling appear in bow view. Tie-down rings are part of bag. Chocks are built into wheel pants.*

THE HOWLER

Detonation. Practically the only types of trouble being experienced with the R-2600-20 engines, installed in TBM and SB2C aircraft, are valve or piston failures caused by detonation. These failures generally are attributed to pilots exceeding operating limits.

Every squadron commander should make sure that all pilots in his group are carefully indoctrinated in the use of the operating limit charts in the applicable pilots' handbook. These charts give operating limits for all kinds of operation. Attention of all pilots should be directed especially to those power curves involving BMEP limits in cruise. It is felt that if pilots understand these limits and observe them, most of our detonation troubles will be eliminated.

Instrument RUDM's. *Technical Note 11-47* sets forth the specific information desired by BUAER when instrument RUDM's are submitted. When it became evident that this information was difficult to obtain, *Aircraft Instrument Bulletin 12-47* was issued, requiring that decalcomanias, providing the desired information, be installed on all instruments.

Due to the lag in obtaining instruments with these decalcomanias, Attack Squadron Five Able has inserted an Instrument Data Sheet in the aircraft log of each assigned aircraft, supplying the following information:

INSTRUMENT DATA SHEET
(All instruments removed and installed)
for
BuNo.
(Commencing)

Nomenclature			
Stock No.			
Name of Mfg.			
Mfg. Model No.			
Overhauled at			
Overhauled on			
Issued by			
Issued on			
Issue Condition			
Reinspection date			
Installation date			
Inst. hours			
Removal hours			
Inst. hours			

In the interest of eliminating as much bookkeeping and retention of records as possible, it is not contemplated to specify such a procedure for universal use. However, the use of an Instrument Data Sheet in the aircraft log, as an interim measure until the instruments with decalcomanias appear, is satisfactory and may be used if desired.

BuAer Gets Seaplane Float

BUAER has designed and developed an air transportable seaplane service float assembly which is composed of nine pneumatic float sections connected in a "U" and covered with a treated plywood deck.

This type of float is designed for use at an advance base where seaplane maintenance facilities are either inadequate or entirely lacking. Each pontoon consists of a four-compartment section and production models of the pontoons will be manufactured of nylon.

The deck is made of ¾" treated plywood cut in panels of a suitable size to stow aboard a PBM plane. The panels are hinged together to provide a stable working platform and secured to the top of the pontoons, making a platform that is about six feet

NYLON PONTOONS WILL MAKE A PORTABLE SLIP

wide on both sides of the plane and about 18'x25' at the bow of the plane.

The complete unit weighing about 5600 pounds is capable of being transported by air and can be assembled from the plane while still in the water. This unit also can be disassembled from the water, stowed in the plane and flown to another location. The assembled unit may be moved on the water, using a bridle attached to the forward end, and towed by a plane or power boat.

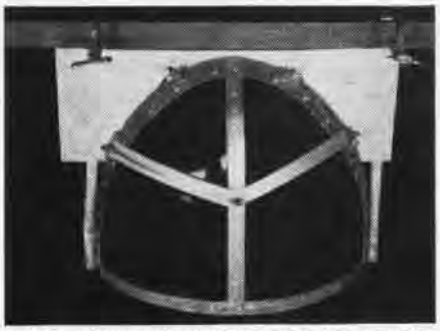


PHOTO SHOWS JIG HOLDING FINISHED CANOPY

Chief Makes Shaped Hoods

VA-6-A, PACIFIC—A chief metalsmith of this squadron has developed an efficient way to make an amber hood for TBM cockpit canopies so they can be used in conjunction with blue goggles for instrument flight training.

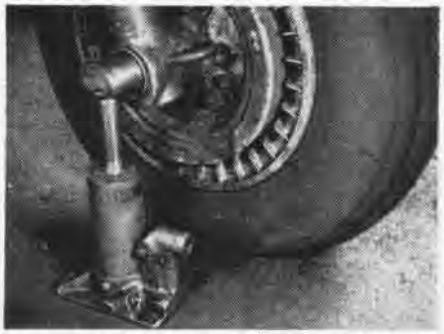
Unlike some other such hoods constructed of flat sheets, this method used heat and sand to provide a hood with a curved surface for better fit.

A jig to hold the elements of the hood was constructed first. Rib for the top of the canopy was made first, using half hard scrap. An arc was formed to fit the contour of the canopy. Rivets two to three inches apart hold the amber glass in the strap frames.

When the various straps were in place the jig was inverted and the amber sheet placed in it. The sheet was then filled with sand and external heat applied. The inner strips of the formers then were inverted to hold the amber in place.

The hood slides into place over the compass mounting bar and locked in by two cherry rivets at the aft base of the forward canopy. The hood can be changed from one plane to another in five minutes. Work time to construct was six hours.

(*Devised by Ivan Donald Alther, ACM*).



JACK ADAPTER GIVES WHEEL EXTRA CLEARANCE

Handy Jack Pads for SB2C

VA-17-A—During recent months this squadron has experienced considerable difficulty with the SB2C-5 with respect to flat tires on the runway. When the tire is flat, the distance between the jack point on the landing gear strut and the runway is not sufficient to allow the jack to be placed under the landing gear strut. Unsuccessful in attempts to obtain smaller jacks, the maintenance department designed a set of jack pads to fit into a hole in the landing gear struts above the jack point.

These jack pads give approximately three inches more clearance and allow the jack to be placed properly even though the tire is flat. Several opportunities to use the jack pads have shown them to work perfectly, saving much time and labor.

Rocket Head Hoisting Sling

A hoisting sling, Mk 31 Mod 1, has been designed for assembly on 11.75" rocket head, Mk 4 Mod 0. This sling is for use in lifting and transporting 11.75" rocket heads on shore stations or aboard aircraft carriers.

The sling consists of a wire cable with a loop at one end to fit over the nose of the rocket head. The opposite end of the hoisting sling is fitted with a flat bar carrier and safety latch. The carrier fits over the trunnion bolt on the rear shipping cap of the rocket head. The safety latch prevents the carrier from slipping off the trunnion bolt.

A welded "T" bar is attached to the center of the hoisting sling and is provided with an eye for a crane hook or shackle.

The Mk 31 Mod 1 hoisting sling supersedes the Mk 31 Mod 0 hoisting sling which is not provided with a safety latch and is not suitable for service use. Weight of the new sling is nine pounds. (List of drawings: BUORD Sketch No. 172485; General arrangement: BUORD Drg. No. 512533).

HOISTING SLING MARK 31 MOD 1

LETTERS

SIRS:

I think that if you will take another look at the *Recognition Quiz* in your December issue, you will find that the Martin six-jet bomber pictured is the XB-48 and not the XB-47. I have seen this plane many times as it is being tested here at Patuxent River.

WILLIAM B. CUMMINGS, S1AERM
NAS PATUXENT

¶ Correct. For a look at the Boeing six-jet XB-47, look at the January inside back cover.

SIRS:

There has been a controversy raging for many days out here concerning use of 40 mm. guns in single-engine craft. There's some money involved, and, of course, our integrity. So we decided to accept your word.

Did the British Hawker *Typhoon* have a 40 mm. in each wing? If so, did it ever amount to anything more than an experiment?

Was there any single-engine fighter craft that carried 40 mm. guns? Were they used to any extent in World War II?

THOMAS L. LONG, ARM 3C
NAF JOHNSON ISLAND

¶ You don't have to take our word; here is the official reply secured from the RAF and British Naval Air Service, via BUAER. The *Hurricane* carried two wing-mounted Rolls Royce 40 mm. "S" (for Secret) guns. Several squadrons were used as tank busters by the Middle East Command, and did good work against Rommel in Africa. One Hawker *Typhoon* was equipped the same as the above *Hurricane*. However, the African campaign had ended and the installation was dropped.

One *Hurricane* was equipped with one under-the-belly mounted 40 mm. Bofors gun. First shot stripped off a lot of fuselage skin. Several squadrons of *Tse Tse* (name changed from *Mosquito* because of added lethal sting.) were equipped with one nose-mounted 57 mm. (six pound) gun. Used by Coastal Command and sank several German U-boats.

SIRS:

To Marines and the Marine Corps, Nov. 10 is always a day to be remembered and observed. For VMF-214, alias the *Blacksheep*, this year's anniversary, was, if anything, even a little more so. More so, because the occasion presented an opportunity for the squadron to welcome back into the fold, Col. Gregory Boyington, USMC (Ret), Congressional Medal of Honor wearer and former CO of the squadron.

A dinner dance was held at a Los Angeles hotel with Col. Boyington as guest of honor. Maj. Gen. Louis E. Woods, Commanding General of First Marine Aircraft Wing, and Col. Stanley E. Ridderhof, CO of MCAS EL TORO, headed the list of guests who attended the affair from the air station.

During the course of the evening, Freddy Martin and orchestra obliged by playing both the Marines Hymn and the currently popular "Whiffenpoof Song," which was, by the way, adopted in 1943 by the squadron as its theme song.

For the cake-cutting ceremony, and it was a delicious cake, beautifully decorated, all guests retired to a smaller banquet room where Col. Boyington did the honors, flanked by Gen. Woods and Maj. D. H. Sapp, present CO of the squadron.

MARINE FIGHTING SQUADRON 214
MCAS EL TORO

SIRS:

I hate to find fault with anything so enjoyable as your fine magazine, but in studying the December issue today I came across the picture of Pete Powell's (AD-1 F-401) "roaring down the flight deck of the *Roosevelt*." Horrors!

Could it be that the yard workers have placed a wood sheathing over the armor plate deck of my recent home in the past two months since my detachment? Believe the picture was made during carquals on a smaller ship.

F. D. FOLEY, CDR., USN
NATC, PENSACOLA

¶ Plankowner Foley caught NANEWS with its planks down. The picture showed a plane off the *F. D. R.* with the "F" on the tail, but the ship was the U.S.S. *Sicily* (CVE-118) on which the *Roosevelt's* AD's qualified. The wooden deck of the smaller ship was plainly visible, but it took a former exec of the *F. D. R.* to catch us in our error.

NAS JACKSONVILLE—The daughter of a station employee had a chronic case of hiccoughs so she was taken for a ride in a plane which zoomed, rolled and snapped in an effort to scare her out of them. The ride didn't cure the girl but it made her father pretty sick.

CONTENTS

ANSWERS TO QUIZZES

● RECOGNITION QUIZ

(Inside back cover)

Top—XP-86 built by North American, is a cousin to the Navy's FJ-1 carrier fighter with conventional wings. The plane has 1,000-mile range and 40,000-foot ceiling. Wings are swept back 35 degrees. Powered by J-35 General Electric-Allison engine with 3,750 pounds thrust. Wing span and length both 37 feet.

Bottom—We slipped this one in as a little test of your memory. This sesquiplane P-boat is the P2Y-3, predecessor to the Catalina. In the rear are several PBY's.

● AIR STATIONS

Top — NAS Denver. Situated at former Air Force B-29 base at Buckley field, this station has two runways 8,000 feet and 6,400 feet long respectively. Altitude of field is 5,600 feet, hence the long runways.

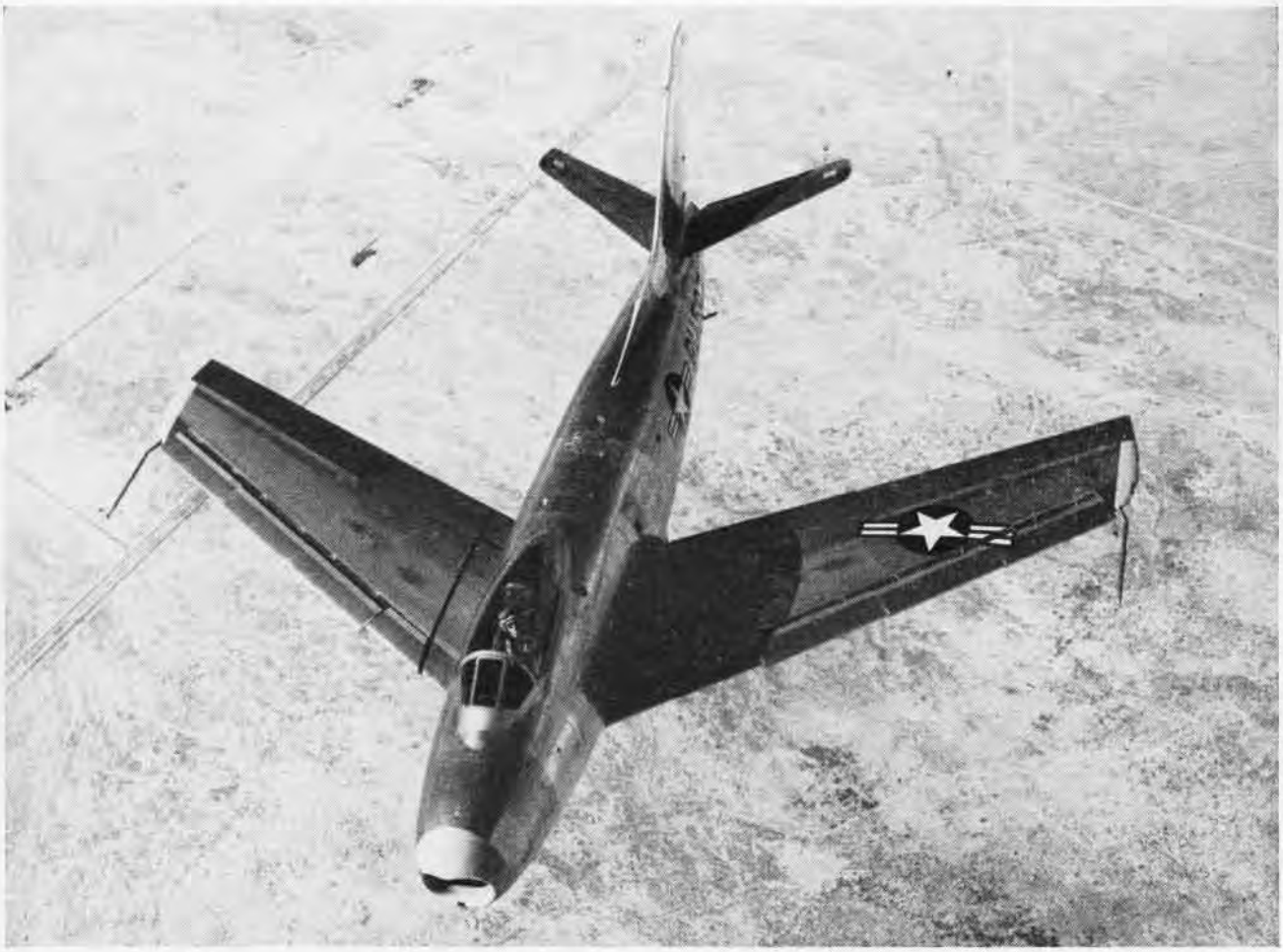
Bottom — NAS St. Louis. The air station is at the bottom left part of the picture. At the top is the municipal airport, where McDonnell Aircraft, maker of the *Phantom*, is located. A new runway, paralleling the air station's flight line, has just been opened at St. Louis.

● THE COVER

An unusual view of the Navy's new jet fighter, FJ-1 made by North American. It is the 600-mph class and is a second cousin to the Air Forces' XP-86, the swept-back wing fighter appearing on the opposite page. The FJ is not the first North American plane used by the Navy—the Marines used many PBJ's *(Mitchell)* during the war and almost all aviation cadets were trained in SNJ's.

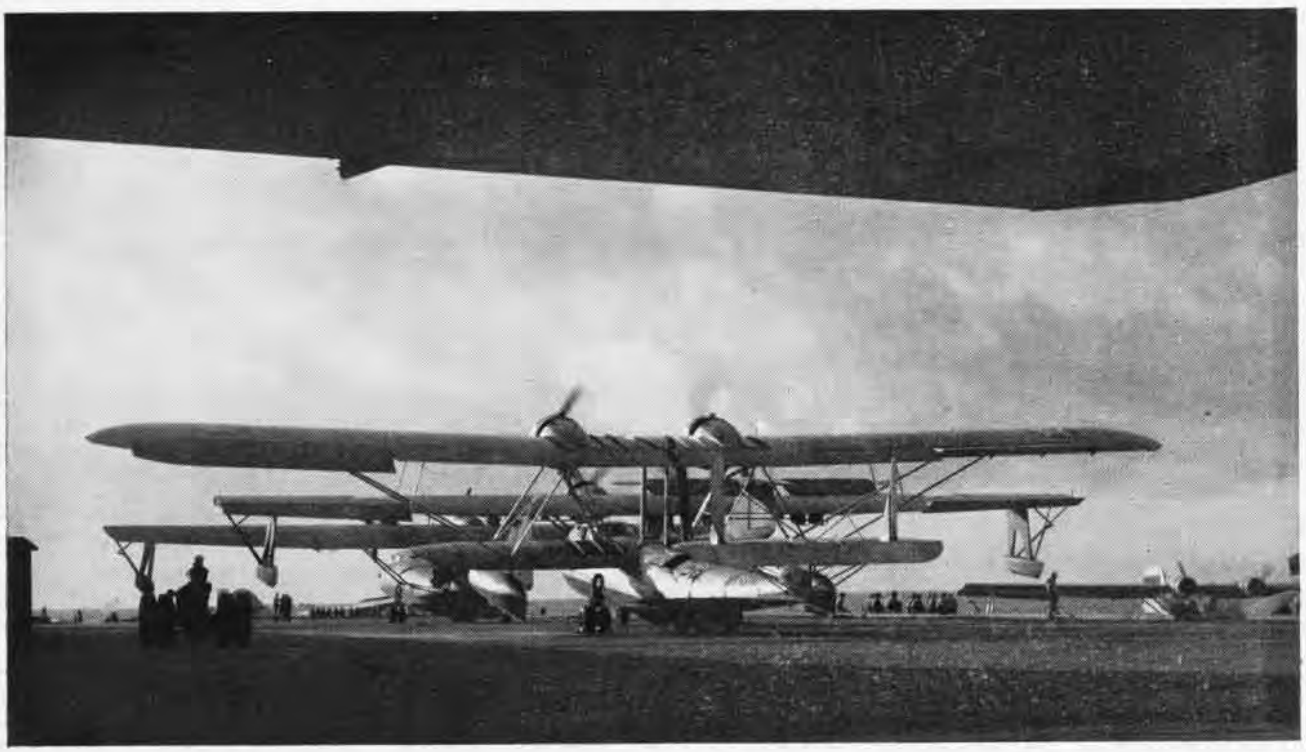
NAVAL AVIATION NEWS

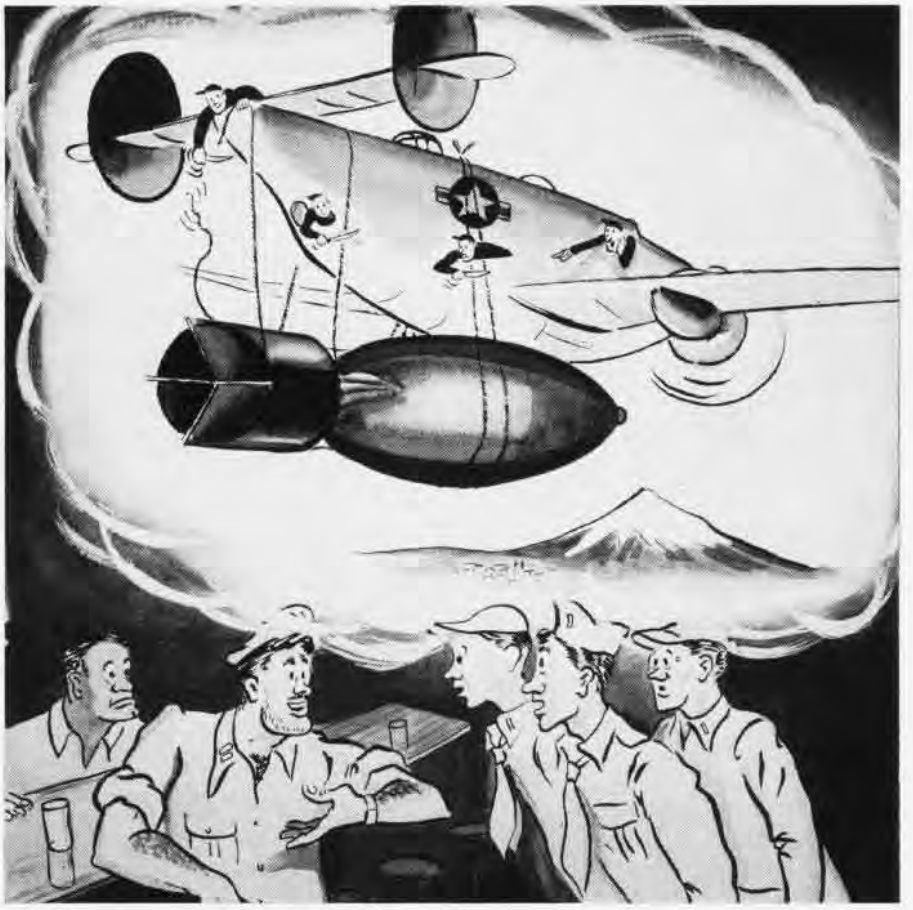
Published monthly by Chief of Naval Operations (OP-50-D) and Bureau of Aeronautics to disseminate safety, survival, maintenance and technical data. Air mail should be used if practicable, address to: Chief of Naval Operations, Naval Aviation News, Navy Department, Washington 25, D. C. Direct communication can be made to Naval Aviation News, Room 4927, Main Navy Bldg., office telephone extension 61662.



ON LAND AND SEA

SWEPT-BACK wings appear to be the New Look for jet planes. This vicious looker is one of the Air Force's newest. What is that plane below? *Answers opposite page.*





And There I Was---

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