

# AIR FORCE

THE OFFICIAL JOURNAL OF THE AIR FORCE ASSOCIATION, JANUARY, 1949

## The Story Behind 48 Little Air Forces

See Page 11

PETE QUESADA  
New Pilot for Civilian Components



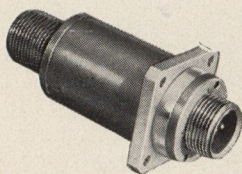


# BENDIX-SCINTILLA

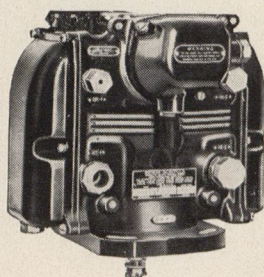
## AIRCRAFT IGNITION EQUIPMENT



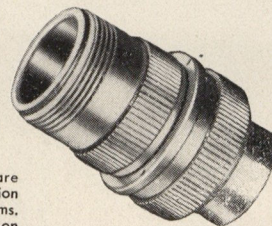
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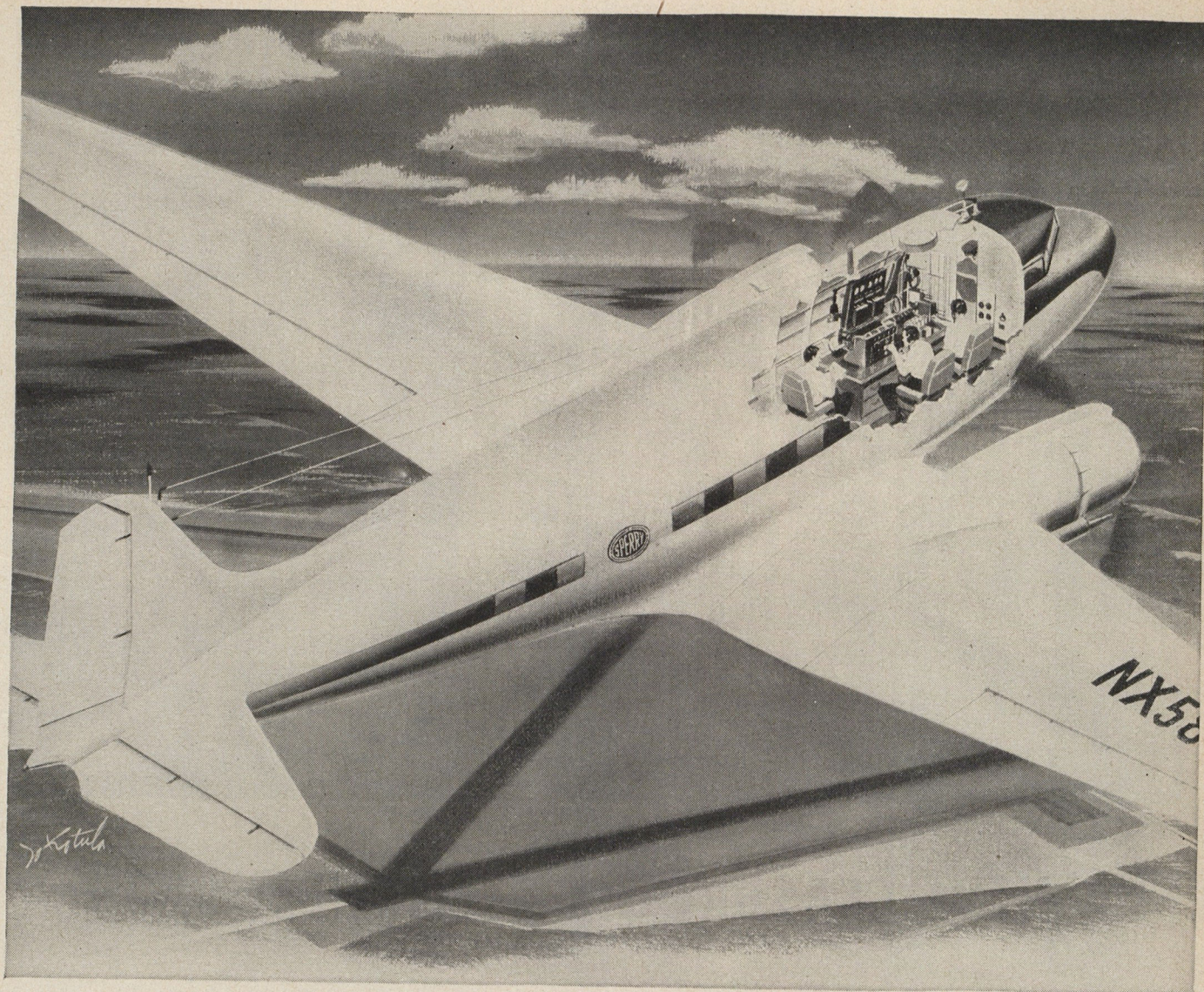
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# AIR FORCE

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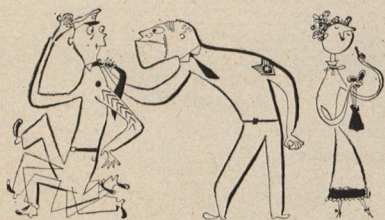
# AIR MAIL



## The New Chevrons

**Gentlemen:** While enjoying my copy of AIR FORCE for October, I came across an advertisement which has me puzzled. I am of the opinion that the US Air Force has never been defeated. According to regulations, the new chevrons state it has. Why are the new chevrons upside down?

John Warren  
Philadelphia, Pa.



• They are upside down because the Air Force thinks they are prettier that way. USAF headquarters says there is no relationship between the position of the chevrons and past wars—won or lost.—ED.

## In Defense of Dominator

**Gentlemen:** In your recent article on "The New Air Force, you mention that B-32s are now considered obsolete. I am curious as to why B-29s are still being used, since the only difference I know of between them is in the shape of nose and tail.

Lawrence Weller  
New York, N.Y.

• Probably the main reason the B-29s are still being used while the 32s aren't is that there were a great many more Superforts built to begin with. There were 114 production type Dominators delivered to the AAF while Superfort deliveries numbered in the thousands. Technically the old B-29 may be just as obsolete, or "obsolescent" as the B-32, but most of the 29s now in use have been considerably modified to give them many new plane features including greater range. There were more differences between the two planes, incidentally, than in tail and nose construction. One of the more obvious: the 29 was pressurized; the 32 was not.—ED.

## On the MAT

**Gentlemen:** May I call attention to an error in the article "One Damned Island Again" in the October issue of AIR FORCE? The author in the first paragraph makes it clear that Troop Carriers are not a part of the Military Air Transport Service. Very true indeed.

Troop Carriers are doing a terrific job with the Berlin Airlift and deserve all the credit due them. However, in his exuberance, the author put many MATS squadrons in the Troop Carrier organization. To be specific, the 17th, 22nd and 23rd are MATS squadrons from the Pacific Division. The 11th and 12th squadrons are MATS squadrons from the Atlantic Division. MATS is in on the Airlift too.

Capt. Theodore S. Wood  
Westover AF Base  
Chicopee Falls, Mass.

• Right you are. MATS is undoubtedly accomplishing with dispatch and determination the largest peacetime assignment ever handed an Air Force organization. We apologize if we were a little ambiguous in our unit designations.—ED.

## Mission Accomplished

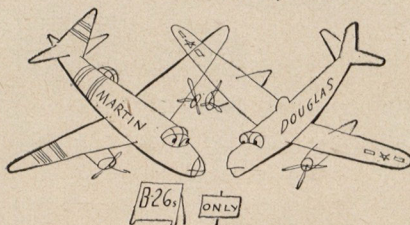
**Gentlemen:** I am very pleased to inform you that, thanks to the valuable cooperation afforded by your magazine, the subscriptions for the erection of a monument to honor the five US flyers shot down over Yugoslavia in 1946 now total \$1150, thus exceeding our goal of \$1100. Plans are now being made for the design and construction of the monument. The advice of the families of the five deceased flyers is being solicited.

Arthur Bliss Lane  
Washington, D. C.

## 26 Confusion

**Gentlemen:** I'm having a heck of an argument over the old A-26. Will you please let me know if it was changed to TB-26 or B-26. If it was changed to the B-26, wouldn't it be confused with B-26 Marauder.

Pfc. Clarence H. Ryan, Jr.  
Keesler Field, Miss.



• The A-26 is now officially the B-26 which, you can bet, is confusing no end. To keep the record straight, AIR FORCE will henceforth refer to them as the "Martin B-26" or the "Douglas B-26."—ED.

## To L with it

**Gentlemen:** In your Air Force Day is-

sue, the article "Poop from the Pacific" mentions the fact that during the spring election crisis in Korea the only American planes actually taking part were the L-5s. Yet the picture on page 33 shows an L-4 in the air. Now it is probably true that there were both L-5s and L-4s up at that time, but for goodness' sake let's not confuse them. The L-4 has a 65 hp engine, the L-5 an 185 hp engine, plus other things.

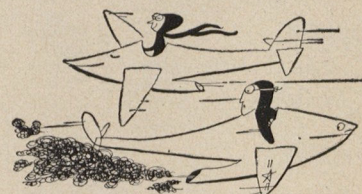
Donovan C. Morrison  
Salem, Ore.

• The author's point was that there were no combat-type planes in the air, which might have been construed as an "American" influence on the election itself.—ED.

## Smoke-Trailing Jets

**Gentlemen:** I have noticed in photos and in movies that the F-84 while in full flight seems to leave a thin, wispy trail of black smoke, while another jet, the F-80, does not. How come the difference, if any? Just for good measure, I was wondering if the new F-86 also exhibits this smoke-trailing characteristic while in flight?

Sanford J. Bloom  
Chicago, Ill.



• Like the conventional internal combustion engine, the color of the exhaust on a jet depends on the completion of combustion of the particular engine at a particular time. Any jet will smoke under certain conditions but if combustion is complete, the end product will be invisible. Most jets tends to smoke at low altitudes and right after take-off because the engine is not burning at maximum combustion effectiveness.—ED.

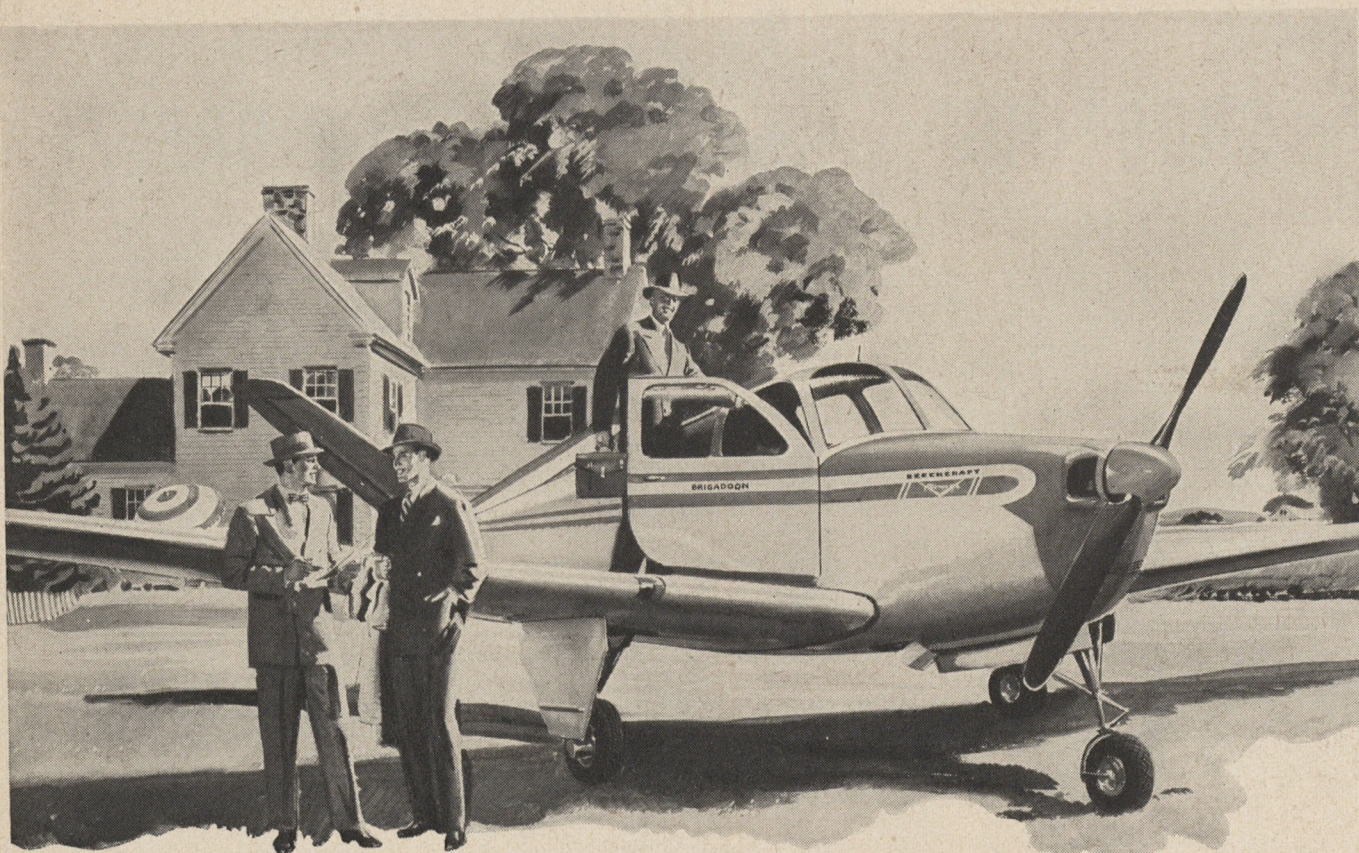
## The 93rd Again

**Gentlemen:** In your October issue a corporal mentions that the 93rd Bomb Group was not a part of the 8th Air Force. It was. It was a B-24 outfit stationed at Hardwicke, England.

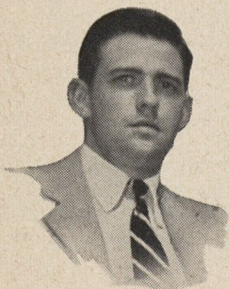
David L. Wolman  
Brooklyn, N. Y.

• Between 1942 and 1945 the 93rd belonged to the 8th. It is now a part of the 15th.—ED.





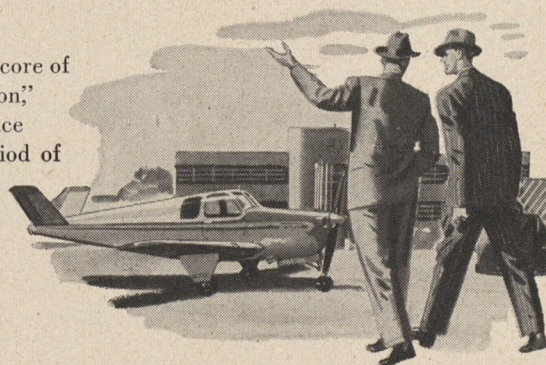
**Executive who never flew a plane before**  
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"I don't know where this idea came from that you have to be a long-experienced pilot in order to be a Bonanza-businessman," declares Francis D. Wetherill, executive of John Wanamaker's, Philadelphia. "With no previous aviation experience,

I bought a Beechcraft Bonanza—and was on my way after only twelve hours of instruction. It's the plane—not me. I find it perfectly simple and easy to fly. And no investment I ever made paid me bigger dividends!"

"**Bonanza-businessmen**, as Mr. Wetherill calls them, have upset a score of traditions in their adoption of this fast, efficient, economical transportation," says Guy Miller of Wings Field, Inc., who delivered Mr. Wetherill's 4-place Bonanza and arranged his instruction. "The idea of a long and arduous period of 'learning to fly'—an idea that has kept all too many executives tied to surface transportation—has been thoroughly dispelled by the sound design and flying characteristics of the Bonanza."



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# SHOOTING

## The Incendiary Bomb

Our December issue has stirred up quite a fuss over the Air Force Association's proposal for a single air force.

Jimmy Doolittle's article on the subject, widely quoted by press and radio, seems to have justified the *Washington Daily News* headline: "Doolittle Drops an Incendiary Bomb."

## Our Navy Readers

The *News* went on to say that the Doolittle article "caused an uproar in the Navy," and explained, "Scheduled conferences were cancelled to discuss it. Navy Secretary John L. Sullivan is reported to be furious and preparing a protest to Defense Secretary James Forrestal."

We wouldn't know about all that, but we're quite sure our Navy readership is healthy. We've filled rush requests for copies of the December issue from the Navy's "unification committee," from several admirals, and a weird, roundabout request through a friend-of-a-friend-of-a-friend from the Chicago office of the Navy League.

Frankly, we don't know why the Navy's eyebrows are upturned at this late date. We've done everything but paint signs on the side of the Navy building proclaiming AFA's support of strong land-based airpower and its criticism of two full-fledged air forces, super-carriers, and what have you.

## Bombing in Texas

The same day our December issue and its "incendiary bomb" appeared last month, AFA President C. R. Smith was in San Antonio urging reorganization of our defense establishment on a functional land-sea-air basis and a single air force. This sounds like split-second timing on our part, but we must refuse the compliment. It so happened that our magazine publication date and the annual dinner of the San Antonio Chamber of Commerce, which Smith addressed, fell on the same day.

In his talk AFA's president pointed out that "Based on the situation and trend of 1948, our Achilles heel may be the strain we impose on the national economy, on our continued ability to meet the costs," and explained: "There is no disputing the fact of unwarranted duplication between the different services of the military establishment, duplication which saps the efforts of our best men, duplication which makes difficult the cooperation effort required and duplication which unnecessarily adds to the cost of the defense establishment. It must be eliminated; the house must be put in order through true unification. We, as citizens, must insist that it be done."



# THE BREEZE

## Putting the Record Straight

In its reaction to AFA's proposals the Navy has tried desperately to link the AFA stand on a single air force with official US Air Force policy. It should be well known to the Navy by now that at AFA's annual convention banquet in New York City on September 25, 1948, Secretary of the Air Force Symington reported to Association delegates from throughout the country that the Air Force-Navy situation was "improving steadily," that substantial progress was being made under Unification. The next day these delegates disregarded his counsel and unanimously adopted a statement of policy which described the Unification Act as "lacking in strength, rife with duplication, inefficient, and saturated with waste," and which urged establishment of a single air force. The statement directly contradicted Air Force policy on the subject as expressed by Secretary Symington only the day before.

## The Task Force

Meanwhile, the Hoover Commission's "task force" investigating the national defense came out with its report which supported continuance of two full-scale air forces, and which rejected the single air force idea.

We haven't seen some facts reported on the makeup of this group, and it seems a good time to relate them. For example, several members of that committee are also members of the Navy's old and powerful "civilian arm" known as the Navy League. This includes the "task force" chairman, Mr. Ferdinand Eberstadt, who, we understand, has recently been re-elected vice president of the League. These men have all supported the majority decision of the committee.

We do not mean to imply that these Navy League members of the "task force" necessarily voted against a single air force because that view is the Navy's party line. We must assume they came to their decisions independently, and while serving with the Hoover Commission put aside all consideration of what their Navy League stands for. But we suggest that the Navy League affiliation places a stiff requirement on these men, and that this situation is in striking contrast to the unquestioned independence of the Finletter Commission of a year ago.

It seemed inescapable that someone

would link this committee's inclination to compromise on vital defense matters, rather than admit the Unification Act was basically ill-conceived, with the fact that Committee Chairman Eberstadt is the man who was chiefly responsible for framing the Act in its present form.

Joseph and Stewart Alsop have seen fit to mention this situation. In their December 10th column they commented as follows on the committee's compromising tendencies: "Here compromise was no doubt to be expected, since Eberstadt was himself responsible for many of the deficiencies in the law that unified the defense services."

The idea of Mr. Eberstadt investigating Mr. Eberstadt and deciding that Mr. Eberstadt was basically right in the first place is hardly recommended jury procedure.

## The Quick Decision

The Air Force Association's reaction to the Eberstadt committee's report was contained in a public statement by President C. R. Smith issued last month at the time the report was released. It stated:

"The report evidences recognition of the duplication and waste in the present program for national defense, yet it seeks to justify continuation of the greatest source of duplication within the defense establishment, that being the program to continue two strong, growing, competing national air forces, one intending to defend the country with carrier-based aircraft, the other planning to do the same job with land-based airplanes. These competing programs are not only wasteful of funds but of manpower and productive capacity as well. We will not have true unification until each of the services is required to stick to its own element, the Army on the land, the Navy on the sea, and the Air Force in the air.

"The Hoover Commission should reject the conclusion of the Eberstadt Report that the present defense system is 'soundly constructed.' The basic problem of duplication should be attacked with more courage and the end result should be true unification with a single national air force."

Hope that the Hoover Commission itself will do anything more than approve the Eberstadt conclusions has all but vanished at this writing. We can assume it will go to Congress in its original form.

Congressmen who have worked long and hard on Unification and on complex airpower matters will not be inclined to ignore the dissenting report



of committee member Robert E. Wood, who is chairman of the board of directors of Sears, Roebuck and Co. He attacked the committee's majority decision that "prudence" demanded continued independent development of the US Air Force and Naval Air Force, and called the discussion of the air force problem "irrelevant."

Stating that unification of the air forces was "the largest element in the unification program and involves the largest expenditures," and that "unification will never be complete or satisfactory until this question is once and for all decided," Wood called for a complete investigation by Congress.

"The subject is such a tremendous one," he stated, "that the few hours that this committee devoted to it is not sufficient time for it to make an intelligent recommendation."

Wood let the cat out of the bag with this amazing revelation that the committee on which Congress had depended for a thorough investigation of our defense establishment had actually spent only a "few hours" on the critical subject of air force unification.

#### Out in the Open

With the problem of duplicate air establishments certain to be studied carefully by Congressmen who are hungry for answers to our huge defense budget, the single air force issue is at last being openly debated.

This is a minor victory in itself for too often the subject has been handled in the same mysterious manner the newspapers once handled V. D. The air force problem, they claimed, was merely "inter-service bickering," and they would have none of it. As long as that hackneyed excuse kept the problem under cover the taxpayer had little chance to judge how his multi-billion dollar defense budget was being spent.

#### Sooner than Later

All in all, reactions to AFA's proposal for unifying our air forces have been most encouraging.

This merger plan, of course, falls completely in line with Secretary Forrestal's recent recommendations for merging Army-Navy sea transport, Army-Navy-Air Force recruiting, Air National Guard and Air Reserve. Merger of the US Air Force and Naval Air Force would be another step in this series of highly constructive moves by the Defense Chief. As the logical consequences of true unification it is bound to come sooner or later.

Miracles still are not in the offing, but growing resentment against the extravagance and inefficiency of multiple air forces prompts the guess that one unified air establishment may be much nearer than we had ever hoped.

J. H. S.

#### CREDITS

Cover-USAF; Pages 11 through 15-Idaho Air National Guard; Page 23-Curtiss-Wright; Page 24-Goodyear; Page 27-Firestone; Page 38-Philadelphia AFA; Page 40-Reni; Page 44-Douglas, Fairchild, Beech. Other photos by USAF.

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## Where the Gang gets together

**ORDERLY ROOM AT ROME:** What happened to the old gang from the orderly room and the hangars at RAAF, Rome, N. Y., who were assigned to the original 4104-B outfit from its inception to September 1945? Walter A. Guild, 1812 Sam Houston Ave., Liberty, Texas.

**OH, NURSIE!** I'd like to hear from any one of the nurses who served with 136th Station Hospital Ward 7 between May 1 and October 1, 1944. This hospital, I believe, was near Colchester, England. Peter Keegan, Cresskill, N. J.

**ATTENTION "DOC":** Would like to hear from Doc, whose last name I do not know; copilot of the late John Paul Olsen who flew the Hump and was lost Jan. 7, 1945; also, Bill Spears, Thayer or anyone stationed in India at 1337th AAFBU, Area 6, from Sept. 1944 through Jan. 1945, and who knew my son. Mrs. J. F. Olsen, 6658 Meadowlawn, Houston, Texas.

**KIA:** Would like to get in touch with any crew member who was stationed on Tinian Islands in 1945 with my brother, S/Sgt. Earl O. Rogers, 44th Bomb Gp., 20th Air Force. He was killed in May 1945 over Japan. Please write me. S/Sgt. Rollo D. Rogers, Sq. K, Box 112, Williams AFB, Chandler, Ariz.

**PHOTO MAPPING:** Would like to contact former members of Flight E, 1st Photo Sq. and the 4th Photo Mapping Sq. and the 23rd Photo Recon Sq. Donald W. Stoddard, 1420 E. Pacific Coast Hwy, Long Beach, Calif.

**WRITE TO JUNIOR:** I'd like to hear from any

former members of the 416th Bomb Gp., 671st Bomb Sq., especially Lt. A. J. Winn and S/Sgt. Glenn G. Stephenson. If anyone knows the whereabouts of either, please write me at this address. Warren G. Davis, Jr., c/o Lt. Col. W. G. Davis, QMC 0-236821, OCQM, Hq. EUCOM, APO 403, c/o PM, New York, N. Y.

**404th HISTORY READY:** The 404th book is presently being published in San Angelo, Texas, and should be completed in late fall or early winter. For further information write: Capt. F. C. Snyder, Box 35, Goodfellow AFB, San Angelo, Texas.

**A-54 STRIPPERS:** Please help me get in touch with all flying officers and enlisted men of the 494th Bomb Sq., 344th Bomb Gp., 9th Air Force. I am especially interested in finding men who served on strip A-54 near Pontoise, France. Ralph H. Clader, 7756 Rock Hill Rd., St. Louis County 23, Mo.

**FLIGHT NURSES MEET:** Former Army Air Evacs are having monthly meetings in New York City. We are eager to hear from as many of you gals as possible, no matter what part of the country you're from. Mary Oldehoff Stehle, 1013 DeWitt Terrace, Linden, N. J.

**SET TO DINE IN '49:** Greetings to all former YAAF personnel. The 3rd reunion was held at the Sonoma Mission Inn, Calif., and the group voted a success. General and Mrs. "Hap" Arnold attended, and we are happy to report that the Big Boss looks hale, hearty and sun-tanned. The gang voted to hold the 1949 reunion at Los Angeles; Joe Carr and Dr. Ollie Johnson will ar-

range the party—so plan to celebrate. John R. Up-ton, M.D., 2440 Pacific Ave., San Francisco 15, Calif.

**HOW DO YOU KNOW YOU CAN'T THINK?** Has any one thought of a reunion of personnel of the 449th Bomb Gp. (Grotttaglie, Italy)? Would like to hear from any 449er readers of AIR FORCE, please. William L. Eury, Box 188 Appalachian Apts., Boone, N. C.

**MIA:** Would like to hear from any one who knew Lt. Charles R. Knight, 0-679756, overseas. He was stationed at Nobgab, New Guinea, from April 1944 to May 1944 when he was reported missing in action. Robert D. Hupp, P O Box 104, Gonzales, Texas.

**WEATHERLY OF THE CBI:** I am trying to locate Capt. Edison C. Weatherly. He was a member of the 490th Bomb Sq., 341st Gp. (M), in the CBI. If anyone knows his address, please write. Chas. Douglas, 425 W. Rich St., Apt. B, Columbus, Ohio.

**MIA:** Any scrap of information would be greatly appreciated by the friends and mother of S/Sgt. Alpheus H. Riddle, 329th Sq., 93rd Bomb Gp., 8th and 9th Air Force, Middle East, Ploesti Raid. Ted Rudolph, 137-10 87th Ave., Jamaica 2, N. Y.

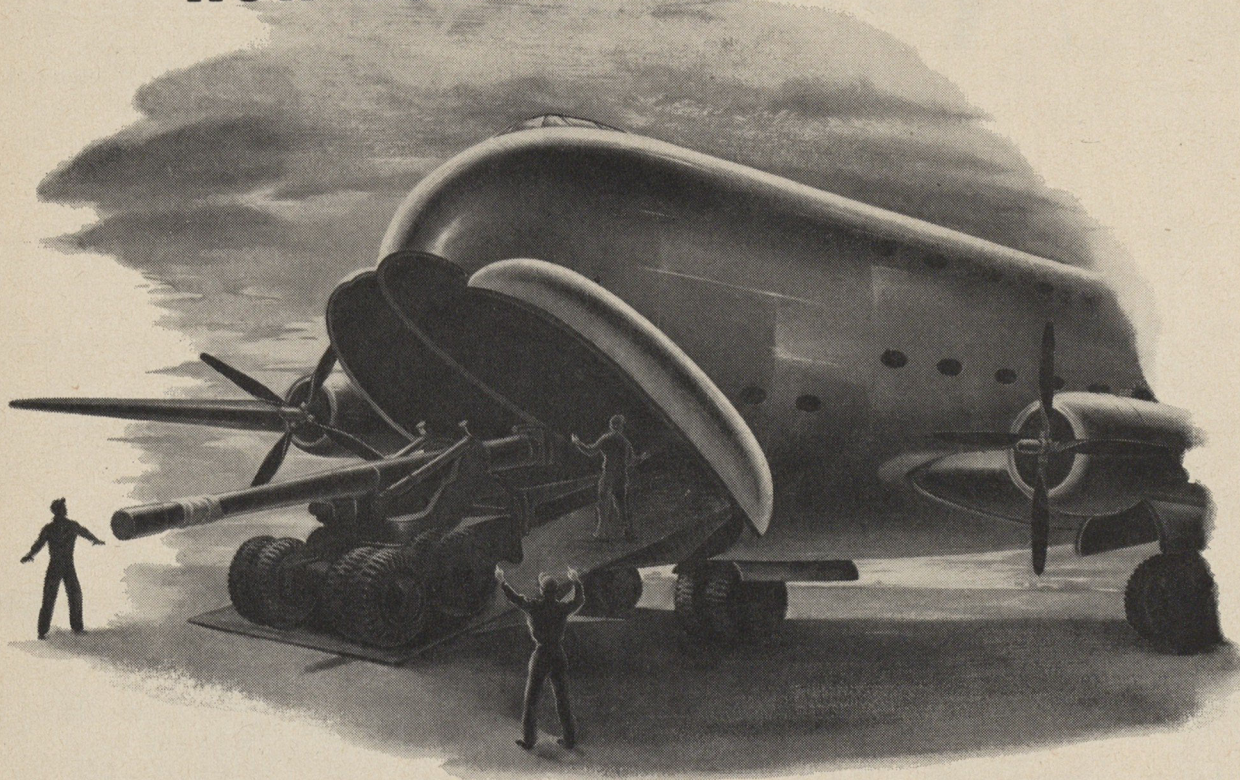
**GOOD LUCK BELL:** When I was in Italy, those of us who were fortunate enough to get to the rest camp on the Isle of Capri bought a souvenir, a little good luck bell with a story behind it. I'd like very much to get a copy of that story, and wonder if any one has kept a copy of it. Stanley C. Denzer, 1086 Ocean Ave., Brooklyn 30, N. Y.

LOOKING FOR SOMEONE? ANY ANNOUNCEMENTS TO MAKE? WRITE RENDEZVOUS AND RENDEZVOUS READERS WILL WRITE YOU.



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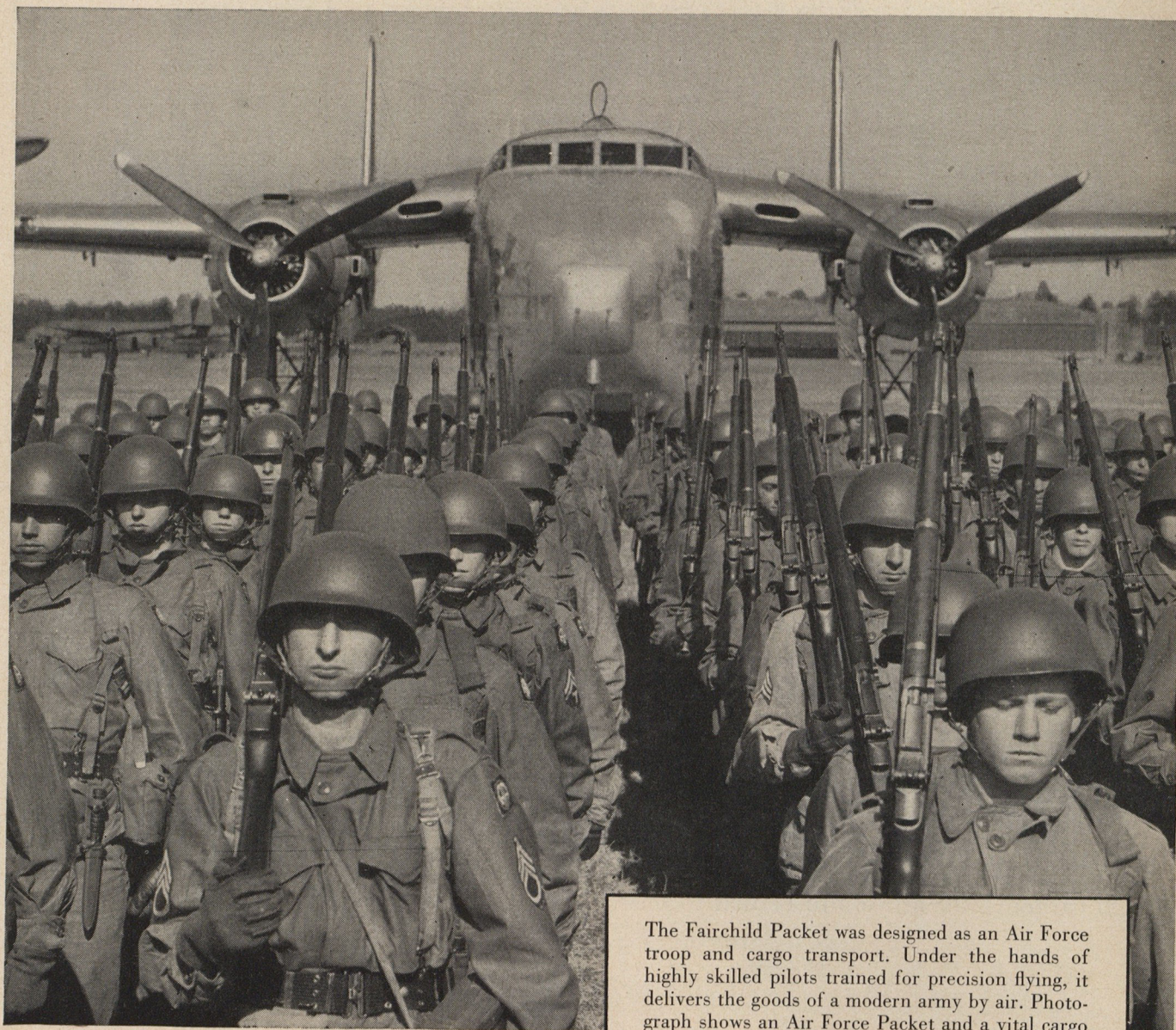




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Warplanes like these of Idaho's "state militia" show no respect for state lines, outmode the National Guard system.

## 48 AIR FORCES TOO MANY

From within the ranks comes the strongest argument ever published for federalizing the Air National Guard and establishing a single civilian air component.

By **Tom Lanphier, Jr.**, *Senior Air Officer, Idaho Air National Guard*

**T**he United States has four dozen air forces too many.

I refer to the Idaho air force, the California air force, the Alabama air force, and the air force in every state of the union. By "air force" I mean an Air National Guard wing, group or squadron.

The term is not used facetiously. An Air National Guard squadron such as we have in Idaho is to all intents and purposes an independent little air force all our own.

The federal government, though it pays 97 per cent of the Idaho squadron's expenses and supplies us with the excellent modern combat equipment we fly, does not presume to tell us specifically how, when or where to fly it, and has no authorita-

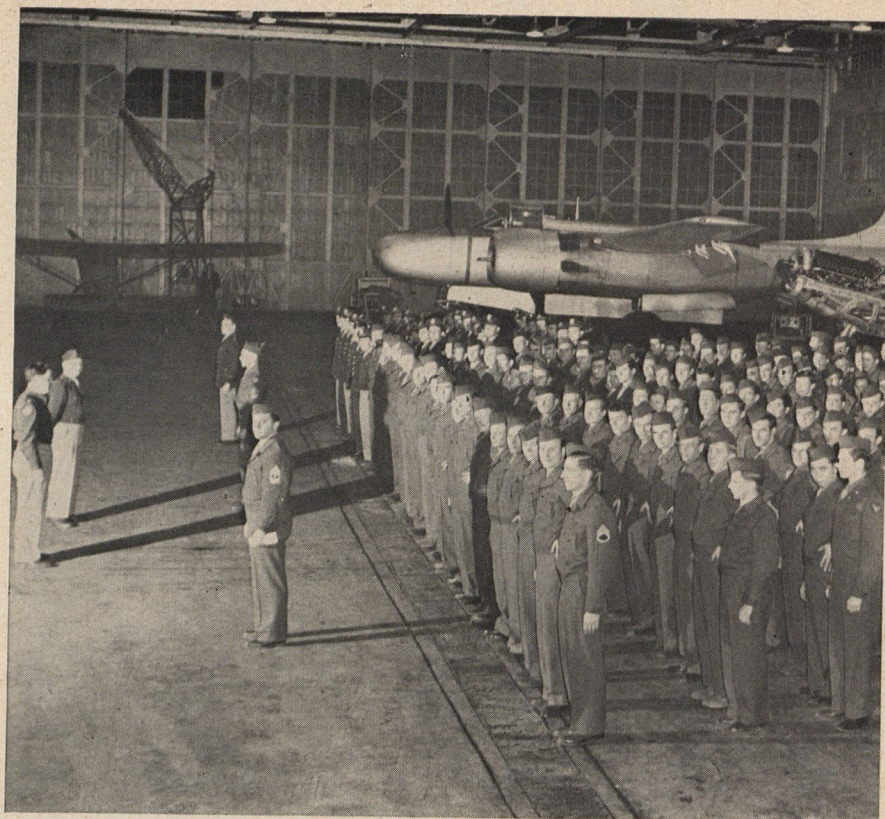
tive way of checking on or insuring the quality of our training.

The undermanned National Guard Bureau in Washington does issue a general directive reminding us that as Air Guardsmen we comprise two-thirds of the nation's aerial defense; the Bureau sets up a general standard and orders us to prepare ourselves accordingly.

But the US Air Force, under which we would fly in the event we were called to action, actually exercises no more than advisory control over our training program and has only a negative voice in the appointment of our officers and men.

Such a situation is obviously wrong. It affords a luxurious flying club for the limited number of pilots fortunate enough to





Idaho's population qualifies it for one Air Guard unit, the 190th Fighter Squadron, shown above at assembly. The author, its CO, is at the far left.

## 48 Air Forces Too Many

get into an Air National Guard outfit. But it doesn't make for trained-to-the-minute combat pilots who can shoot, bomb and fly in any kind of weather. A hard-eyed check of most of the Air Guard units in training will prove this inadequacy to any skeptic. This check will reveal that a handful of Air Guard units can and have actually fired at aerial targets and bombed ground targets up to a standard the US Air Force might approve. But lacking as it does, specific instruction and invigorating inspection from the only authoritative and up-to-date source—the United States Air Force itself—the Air National Guard program in any given state is no better than the individual civilian who acts as senior air guard officer for that state.

By law the training of Air National Guard units is a mission and responsibility of the US Air Force. But in actual practice it does not and never will work out that way. The service's ingrained fear of asserting itself too positively in National Guard affairs, lest it stir up political resentment in the form of a crimped Air Force budget sometime later, results in an unfortunate hands-off policy toward Air Guard training, and leaves every state on its own.

Which is a hell of a way to build a unified, modernized citizen air force.

The unfortunate consequence is the existence of 48 varied training programs for 48 little independent air

forces, most of them doing things the outmoded way they were being done back in World War II.

Forty-eight air forces wasting precious millions of dollars, precious man-hours, precious time. And all quite helpless to remedy the botch they are making of their mission.

Conversely, the civilian component over which the US Air Force does exercise complete operational and training control, the Air Reserve, has plenty of up-to-date direction and inspection, and plenty of pilots. But it has no tactical planes to speak of, has nowhere near enough enlisted men to fill out the projected program, and consequently is making no more of a success of its mission than is the Air National Guard.

The result is a wasteful spinning of props on both sides. The Air National Guard and the Air Force Reserve, despite their best efforts and despite the best intentions of the able men who head them, are each falling short of their common goal: the readying, by part-time training, of citizen airmen qualified to fight in a jet-propelled emergency.

The Air Guard and the Air Reserve, being duplicate agencies, are competing wastefully with each other for men, equipment and the taxpayer's dollar. There is neither enough interested manpower nor enough available money to support them both.

Separately they are proving to be extravagant and non-productive excuses for civilian components of our national defense. Combined, and thus using efficiently and economically the men

## "If this is heresy . . ."

It would be easy indeed for the author of this article to sit back and relax in the Air Guard's "luxurious flying club." He holds the top Air Guard position in his state. He is a member of the Air Force Staff Committee on Air National Guard Policy, highest Air Guard advisory group. The National Guard Bureau recognizes him as one of its leading air commanders, cites him in its advertisements for recruits. The squadron he heads has been selected to get F-80 jets, goal of all Air Guard fighter commanders.

But Tom Lanphier also saw a bit of the war, as a fighter pilot in the Pacific, as Director of Operations and Training for the 2nd Air Force, and knows the meaning of unpreparedness, in individuals and in organizations.

In urging federalization of the Air Guard he realizes it "may sound like heresy," but adds, "If it does, so be it."

We proudly present this unprecedented article by AFA's 1948 president as an outstanding contribution to national defense.

THE EDITOR

and money available, they would soon become a single, productive civilian component of the US Air Force.

To this end, and in the interest of the national security, the Air National Guard and the Air Force Reserve should be merged.

That may sound like heresy to the National Guard organization to which I belong. If it does, so be it. Basing my opinion on no more than two years' experience on the operational and training end of the Air National Guard system, I am convinced that:

The very principle upon which the Air National Guard functions is unsound; an air arm is about as useful to the governor of the sovereign state of Idaho as a bombsight to a freight train.

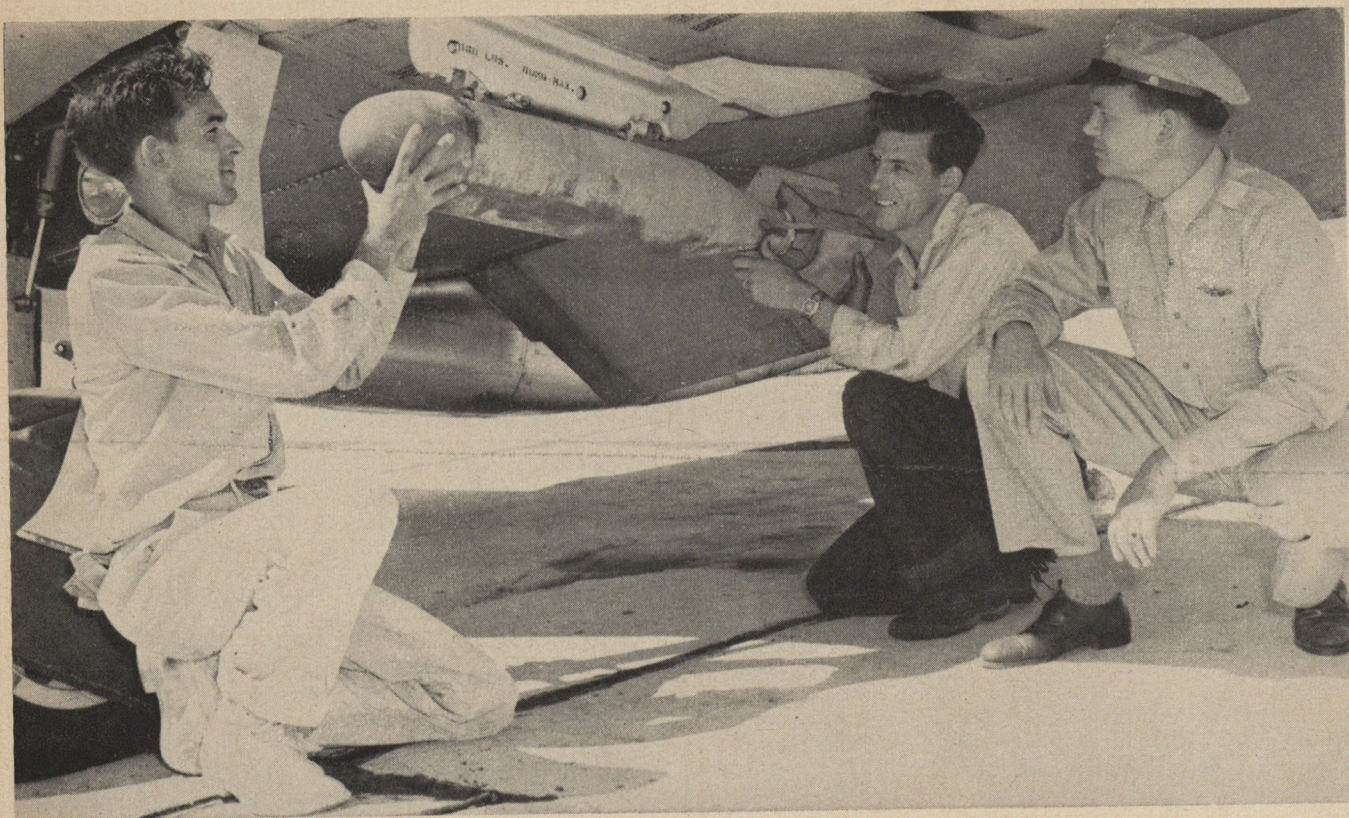
The national economy can't afford the duplication of costs involved with both an Air Guard and an Air Reserve.

Part-time air officers, busy at trying to make a living in civilian life, have not the time, even if they have the inclination, to keep themselves abreast of the latest strategic, tactical and mechanical developments in military aviation; they need operational and training direction from the informed source.

Lacking a specific and continually renovated training program from the US Air Force, there is subsequently lacking in the Air Guard program a vigorous inspection system without which no training program can function and progress.

As long as the political complications inherent in National Guard matters prevail—and they will always prevail as long as there is a National





The 190th wrote its own training program, has received from higher headquarters only an outmoded wartime flying training directive. Picture above was snapped during maneuvers last summer when Squadron practiced gunnery and dive bombing.

Guard—it is unfortunate but understandable that the US Air Force can never be expected to give the Air National Guard the direction and inspection it should have.

Like most of the others who became associated with the postwar Air Guard, I was a novice to National Guard policies and procedures when I joined the 190th Fighter Squadron of Idaho's Air National Guard. I dropped my Reserve commission and joined the Air Guard primarily because it had tactical aircraft to fly, while the Air Reserve in Idaho had nothing to offer but a promise. And as a lot of us learned in the early months of the war—you can't fly promises.

I was fortunate enough to land in a job which allowed me to retain my Reserve rank. But, since there is just so much rank—and no exceptions—in each Guard outfit, many of the others who joined the squadron had to take a reduction of one and sometimes two grades from their Reserve ranks in order to get in. One of them, who had been a lieutenant colonel in the Air Reserve and who dropped to a National Guard majority in order to fly with us, expressed the general attitude on the matter when he said he'd rather be a flying major than a rusting lieutenant colonel.

I was pleasantly surprised to find that the political shenanigans with which the National Guard was traditionally supposed to be plagued did not obtain in the postwar National Guard, at least not in that part of the Guard with which I had made contact. The

National Guard Bureau itself, I learned, was primarily responsible for this. Its policy, rigidly adhered to right up to this moment, of accepting only those applicants who qualified by experience, age and physical fitness for the job to which they aspired, did much to eliminate the political favoritism which had ruined many a National Guard outfit before the war.

This policy was supplemented by the additional fact that the governors and adjutants general in the main recognized their ignorance of military aviation and its highly technical problems and were satisfied to let the Air Force records of Air Guard applicants be the originally determining factor in selection of personnel. As a final check there was always the US Air Force's federal recognition board to act on the qualifications of doubtful applicants. (The US Air Force cannot propose applicants for the Air National Guard but it can, and does, reject applicants it deems unfit for the positions they seek.)

Taking pilots on a first-come, first-served basis, regardless of whether they had flown fighters, bombers or training aircraft during the war, we opened for business in Idaho in the fall of 1946. The 25 F-51 aircraft with which we were to be equipped began arriving in excellent condition within a few months of our activation. The parts and supplies to maintain them, and the accompanying utility aircraft (4 B-26s, 2 C-47s, 2 T-6s, and 2 L-5s) also arrived in such order and quantity as to permit continuous flying training from the spring of 1947 until now.

In the absence of any specific training directives, we started from scratch and wrote our own flying and ground training programs. This is good schooling for the training officers of a newly formed outfit but, as mentioned earlier, it results in as many different tactics and techniques as there are states with Air National Guard organizations.

To this day we have not received a specific ground training directive from either Air National Guard headquarters or the US Air Force itself. The only detailed flying training directive we have received from higher headquarters is one that came from the Air National Guard Bureau. It originally was written for fighter training five years and a whole war ago. I am certain of its date of origin because I wrote it myself back in 1944 while on wartime duty with the US Air Force. It is as outmoded and as out of step with the jet tactics of the 1949 Air Force as I am after four years of civilian life.

Yet here in Idaho this ancient directive is our only tangible guide as to what standards and what sort of flying tactics the US Air Force expects of us. It is hardly adequate.

I cite this instance not in criticism of the Air National Guard Bureau. It does the best that can be expected of it, considering the inadequate number of training and inspection officers it has available trying to execute the sprawling and complex program engendered by 48 highly individual air forces each going its separate way.

On the credit side, the amount and quality of equipment, and the number



## 48 Air Forces Too Many

of full-time personnel afforded Air National Guard units are more than sufficient to the need. The aircraft delivered to us have been, without exception, in excellent shape. The 60 permanent civilian mechanics, clerks, inspectors, etc., all former Air Force men who fill a National Guard position in the outfit on drill days, are ample to keep them so.

Our only difficulty with aircraft is our inability to fly them enough to do them justice. And this despite the fact that, in addition to the 27 flying officers we are basically authorized, we have admitted pilots to every one of the other 26 officer positions into which a rated officer could fit. We have done this because we cannot see any sense in having 35 aircraft for only 27 pilots to fly; particularly when, within 20 miles of our air base, there are some 150 Air Reserve officers eager to fly but unable to do so.

Admittedly there is a limit to the number of pilots an operational unit can train and still retain its unit character and a desired measure of flying safety. But I believe the limit for a civilian component is somewhere closer to 100 pilots for 35 aircraft than 27.

Not all the pilots now on the Reserve lists could be accommodated with training even if the Air Guard aircraft were made available to Air Reserve training. But the answer is that sooner or later,

the number of part-time civilian pilots the US Air Force aspires to keep militarily exercised eventually will have to be pared to a practical compromise between its mission as the Air Force hopefully sees it and the amount of money the Congress allows for the accomplishment of that mission.

If anywhere down to here I have given the impression that I believe there has been a failure on the part of the US Air Force to make the best of the situation as it is, I will let it stand.

This is not to say the Air Force has not been cooperative enough with Air Guard units. The Fourth Air Force, for instance, which is our supervisory command, has gone all-out to afford the Idaho Air National Guard help in training, and particularly extended itself to assist us in running off two weeks of aerial and ground gunnery, rocket firing and dive bombing exercises on one of its bases this past summer.

But cooperation is, generally speaking, a passive sort of assistance. The US Air Force, if it is ever to get the results its responsibility demands, will have to be far more aggressive in initiating training programs and in inspecting them.

There is a fear among Air Force policy makers of possible political resentment on the part of the states against too much intrusion in the Air Guard program. This fear absolutely accounts for much of the timidity with which the Air Force has controlled the Air Guard program to date. It is easy enough for me to say this timidity is

pretty much unfounded as far as Air Guard affairs are concerned, in the belief that most governors, while they might fancy themselves as arm-chair Eisenhowers or Bradleys, are not as likely to second guess a Vandenberg or a Quesada. It is not equally as easy for the Air Force people who sweat out the annual budget to accept my Johnny-come-lately opinion that past experience with politicians in ground Guard matters would not necessarily hold for future experience in Air Guard matters.

I doubt therefore that the Air Force policy makers will bring themselves to take the aggressive stand they should in training the Air National Guard as it is presently constituted. Although I grant it is a left-handed one, I nevertheless submit this situation as one more cogent reason for federalization.

I have dwelt at length on the faults of the Air National Guard program and comparatively little on the weaknesses in the Air Reserve program. That is not to say the Air Reserve program is particularly setting the world on fire. On the contrary, as President Truman pointed out with considerable abruptness last summer, the Reserve is definitely dragging its program.

And in addition to the argument prompted by the obvious deficiencies in both these civilian programs, the certainty of a tight defense budget is more than likely to prove the dominant factor in forcing a merger of the Air National Guard and the Air Force Reserve. For what objections there are to the merger grow weak in the face of the



Though 80 percent of the pilots who have joined the 190th fighter outfit were former bomber pilots, the CO vouches for their ability in F-51s. Here Brig. Gen. John E. Walsh, Idaho's Adjutant General, checks their gunnery results.



irrefutable fact that our national economy can stand no wasted expenditures on even a single civilian component.

Merger of the Air Guard and the Air Reserve will, of course, be vigorously opposed. The professional Guardsmen have already indicated as much. They frankly regard any suggestion of blending the Air Guard with the Air Reserve as a threat to the autonomy of the National Guard itself. They abhor federalization of state Guards, as a step toward undesirable militarization and a step away from "states' rights."

The undesirability of "militarizing" the Air Guard and the Air Reserve into a single, potent civilian component of the Air Force, is difficult to understand.

As to the states' rights aspect, there is admitted merit in the argument when you apply it to the ground forces. A traditional and logical case can be made for state control of a militia of its own, and a governor can always use it in policing disorders or disasters.

But what logical argument can the governor of Georgia, or of Oregon, or of Idaho possibly offer for needing a fighter squadron or a bomber group?

And how do you apply the states' rights argument to the northwest, where our Idaho Air National Guard fighter squadron is a member of an Oregon Air National Guard which, in turn, is a component of a Washington State Air National Guard wing?

The fact is that the airplane and the organizations which fly it in training for the military preparedness of the US across state lines and no amount of conversation can render it otherwise.

Another objection offered to an Air Guard-Air Reserve merger is that the "community pride" in the Air Guard unit will be lost. Guard proponents claim that citizen soldiers will more readily enlist in, and a community will more heartily support a part-time military organization with which the community can identify itself. Their claim is valid. There is real recruiting value in offering an Idaho man a chance to do his soldiering in an Idaho outfit.

But a federalization of the Air National Guard with the Air Force Reserve need not sacrifice this important psychological attribute of the Guard. In so far as the mission of the single federalized civilian component would permit, its units could well be geographically distributed and then locally identified. And personnel for these units could be recruited with the specific understanding that, short of the final emergency, a unit and all its members would stay put in its original area.

The point that puts the community pride argument in its proper perspective is self-evident when you get to the question of who pays the bills.

Take our Idaho fighter squadron, for instance. In the fiscal year 1948 the State of Idaho paid \$12,593 as its full share of this Air Guard unit's expenses. During the same period the federal government, through the National Guard Bureau, paid \$395,694 as its share of the unit's expenses.

With the state of Idaho contributing only \$1 to every \$31 the federal government pays to support the Idaho Air National Guard, it is putting a

whopping value on Idaho's community pride in its Air National Guard unit to argue that this should weigh against a proposal to put the authority for the unit's training in the hands of agency that pays 97 per cent of its bills.

The Congress, which makes or breaks our national defense with its budget allotments, is far better educated to the value of a citizen air force than it was ten years ago. But the Congress is also aware that every million dollars wasted in our national defense budget is another battle won by Russia in its war of attrition.

This new Congress is, therefore, going to look with a pawn-broker's eye at every item of expense proposed by the services. It is bound to find the flaw in a renewed request for both an Air National Guard and Air Force Reserve.

When it finds it, the Congress is bound to check for fat in these duplicating agencies. And it won't get very far in its investigation before it discovers enough inefficiency and waste to convince it that the Gray board was right last spring when it suggested that the Air National Guard and the Air Force Reserve be consolidated into a single federalized civilian component.

Speaking as one of the many civilian airmen who is expected to keep himself trained to fly skillfully in the event of another war emergency, I hope such a civilian component is soon created.

Uncle Sam will then be more likely to get his money's worth and the pilots concerned will be more likely to live a while in combat.



That Air Guard fosters "luxurious flying clubs" is evidenced in 190th, which is authorized 27 pilots to fly its 35 F-51s while some 150 Air Reserve pilots living in area lack planes to fly. Above, happy members of the Idaho "club."



# BLOCKING for the AIRLIFT QUARTERBACKS

To meet Vittles minimums AACS men in Berlin have to put one plane in the air and bring another down every three minutes

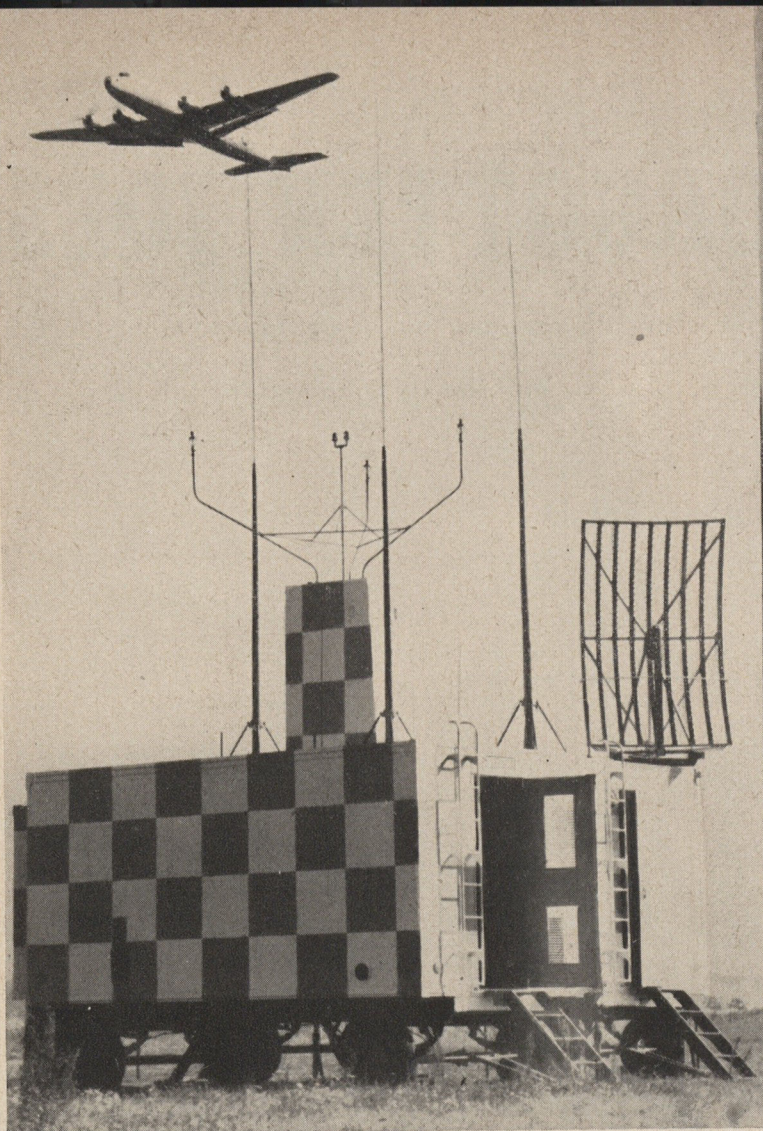
**M**ajor General Bill Tunner, who once commanded the famous flights over the hump into China, and who more recently has been "associated" with the Berlin Airlift, has this to say about the later operation: "The underlying idea of this whole operation is to get the entire lift procedure down to a steady, even, rhythm, with hundreds of planes doing the same thing every hour, day and night, at the same persistent beat."

Keeping the beat is the job of the little-heralded Airways and Air Communications men. For while they share neither the glory nor the excitement of flying the C-54s up and down the 200 mile corridor it is up to them nevertheless to see that the tempo doesn't lag. From their positions in the control towers of Rhein-Main, Wiesbaden, Fassberg, Gatow and Tempelhof, and from their GCA trailers along side the runways, it is their job to see that the daily goal of 450 planes into Berlin is as nearly attained as is humanly possible.

Figure it out. It takes that many planes, carrying ten tons each, to meet the established minimum of 4,500 tons of food, coal, medicine and hay. That means one plane has to get up and another down every three minutes, the clock-around. It's a precision operation requiring even under normal conditions the most careful instructions both for take-offs and landings. Now however with weather "deteriorating" more rapidly every day, the job has become almost unbelievably precise. A month or so ago AACS estimated that over a thirty day period radio contact with a Vittles plane was made every 15 seconds every twenty-four hours. At the beginning of the Vittles run a minimum operating ceiling of 500 feet was established. It's never been officially changed, but some time ago, when it began to look as though the Airlift Task Force was going to drop below its 4500 daily tonnage minimum, the pilots and the AACS men took things into their own hands. An official from Washington who went over to inspect the operation returned with the astonish-

Above, M/Sgt. Edward Bryant of Clarksville, Mo., brings down another airlift C-54 by Ground Controlled Approach. Below a busy tower scene at Tempelhof.





Another Vultee plane approaches Templehof above the black and orange GCA trailer. 450 flights are needed to meet daily goal.



More GCA. Success of Vultees through winter may well depend on split-second instrument landings.

ing report that the boys were actually making the flights with ceilings of only a hundred feet. They are doing their best to keep "the persistent beat."

AACS was initially set up November 15, 1938 to provide communications and navigational aids to expedite and insure the safety of military aircraft in flight—world-wide.

With the end of 1948, AACS observed

its tenth anniversary. From his home in California General Hap Arnold acknowledged the service of AACS men not only in Europe but around the world with this message:

"I believe I can hear an 'Amen' from countless cockpits when I say, in all sincerity, it is the AACS, who, today, 'plays God' to our airmen and airwomen in a very real manner. The

AACS has taken the alone-ness out of flying; and, with it, whatever dread there might otherwise be, of air routes over lonely and dangerous areas, such as vast expanses of ocean, unconquered mountain peaks, relentless deserts. Small wonder the flyer grows to lean on this unseen guide almost as importantly and instinctively as he does on the Great Unseen Force."

First C-54s to arrive from US to relieve over-worked C-47s queue up for initial flight down Berlin corridor.







# FORGOTTEN JOES

It's hard to convince our ill-kempt forces in the Pacific  
that the US is behind the job they're doing

By Charlotte Knight

A pose all too familiar in the Pacific.

**I**t would be incorrect to say that the air commanders of the Far East have been thrown into panic by the Communist sweep over China. They have seen it coming for a long time. They have conceded that strategic Chinese bases would be "available" to Russia and are still confident and even optimistic over the chances of our being able to hold our Pacific outposts in another war if . . .

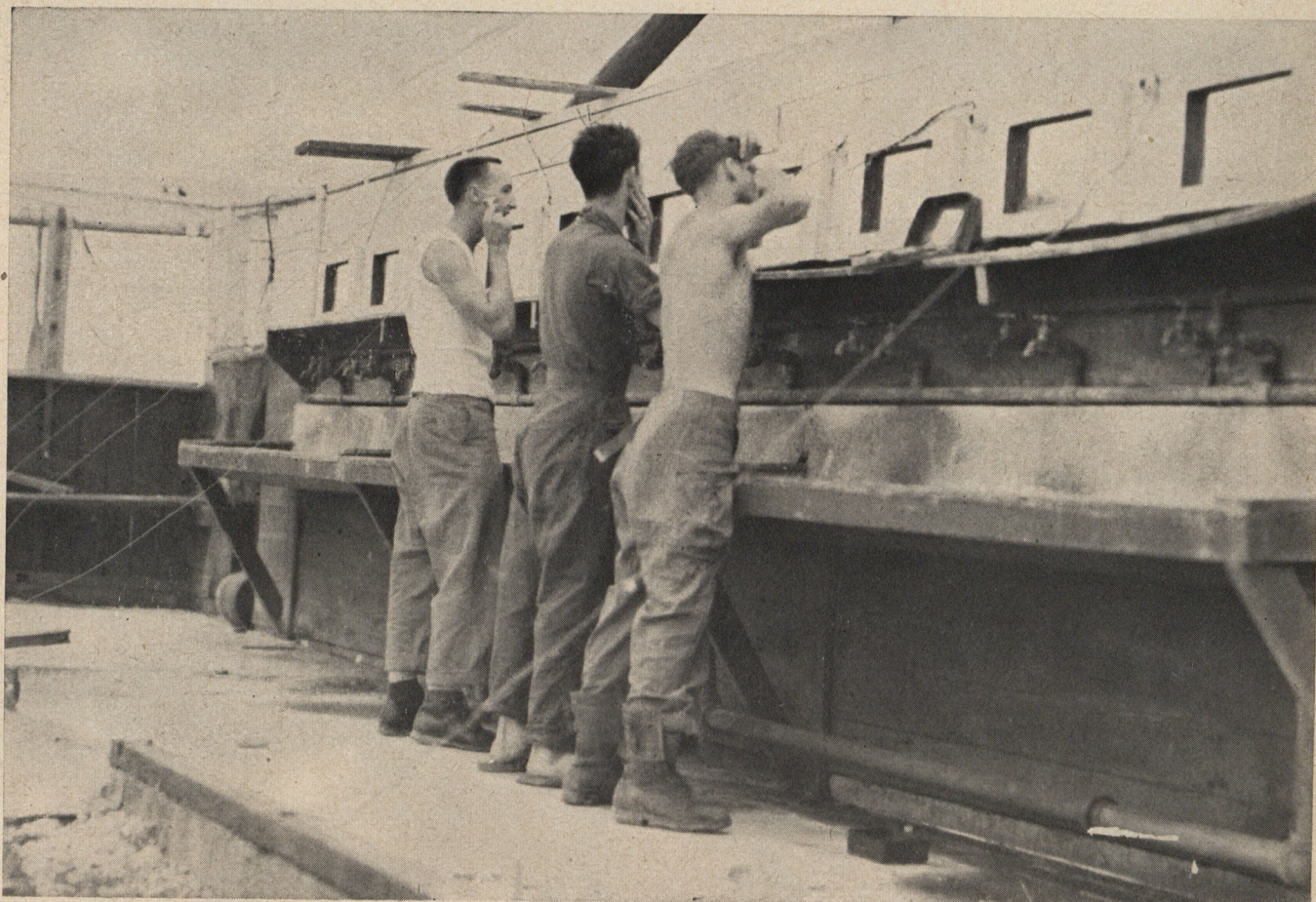
And it's the same old if: *If* we see that those outposts are adequately equipped with early warning systems and fighter planes and a striking force capable of rapid counter offensive; *if*

they are equipped NOW, not after a couple of the islands have been neutralized by hostile air attack.

The first half of World War II proved how tough a Pacific war can be when we do not have Guam or Clark Field or Midway or Wake or any other West Pacific base from which to operate. And although improvements have been made in both weapons and long-range bombers since V-J Day, nonetheless we must assume, in the event of war within the next several years, that we shall fight largely with our present planes—which means that in any conflict with an Asiatic power

we are going to be just as dependent upon our island-to-island defense and supply line across the Pacific now as we were in the last war.

I have recently visited several of our most strategic island bases—Kwajalein, Guam, Iwo Jima, Okinawa. I can report that the past year has seen a vast improvement and an impressive "build-up" on certain bases. But the fact remains that more than three years after the end of the war far too many American airmen are still living in makeshift quarters which should have been relegated to the scrap heap years ago; many of these airmen are still using



Three GIs of the 1st Air Division on Okinawa try to clean up in shell that was once a shower room before typhoon struck.



outside showers and open-pit latrines; bases are still operating with broken-down generators, constantly in need of repair. And much-needed supplies and equipment are not forthcoming. "Guys out here in the Pacific," said one airman cynically, "are just the same poor forgotten Joes they were in World War II."

Morale on Guam and Okinawa admittedly is better than it was a year ago but is still lower than it should be. In too many places living conditions are more reminiscent of combat than of a peacetime airbase. Long tours of duty as spent under such circumstances; it has been announced that the tour will be reduced to 15 months but it will be sometime before this can be put into actual effect. The shortage of houses for dependents forces airmen to wait from 12 to 18 months or more before their families can join them. And too often air commanders fail to explain adequately to their men the reasons why conditions are not otherwise.

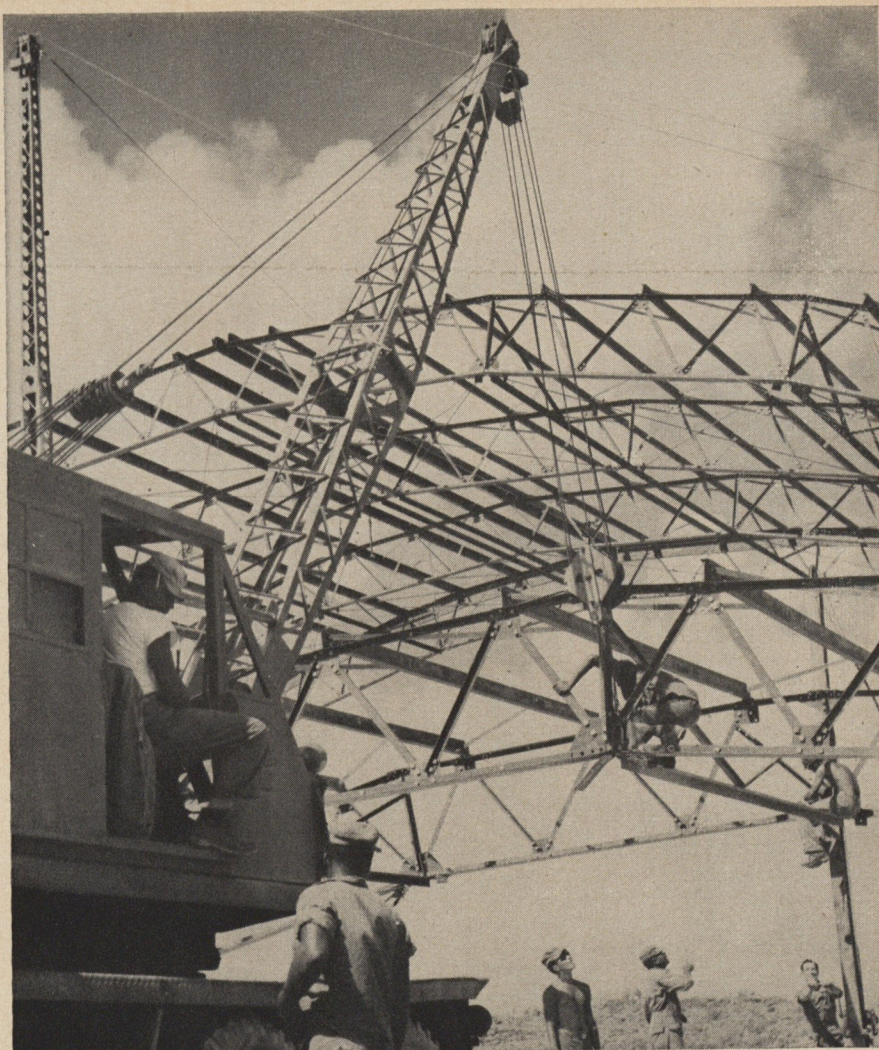
A CO saying that morale is high (as every commander will) does not necessarily make it so. And in the ranks there can be heard not a little griping, much of it legitimate. But on the other side, the air commanders have their problems too and it is the opinion of this writer, having gone into the subject from both sides, that commanding officers at these Pacific outposts have sincerely done their best to improve conditions; but theirs has been the age-old problem of limited budgets—which ultimately puts responsibility at the feet of Congress. There is never enough money to do everything—ever.

CO's must decide which things come first; will it be planes in the air to meet a possible enemy air raid or comfortable quarters and flush toilets for the men? The threat of war and the urgent necessity of defending these island bases has already dictated the answer.

But an enlisted man on Guam's Northwest Field; who has worked many overtime hours six days a week and is forced to spend Sunday washing all his clothes because there is no laundry on the base, finds it hard to be convinced that Guam is as important as the air strategists claim. "Nuts," he says, "if the place is so important, why doesn't Congress give us some money to do something with?"

Washington's failure to allot the funds promised for a 10-year period of "Permanent Base Planning" is something this writer is in no position to explain. Except for one burst of Congressional generosity in the very beginning, there have been almost no additional funds forthcoming. And at the rate the Far East Command is getting its promised \$400,000,000 it will take about 100 years to complete the contemplated building program.

It is only fair to note that the task of building up an airbase in the West Pacific is anything but a simple one. Construction costs for bases like Guam or Okinawa are two and one-half times greater than in the States; thus, the average concrete "dependent house" on these islands is reputed to cost some-



**Engineers of Guam's Northwest AFB move a hangar section into place. Such construction has been slow because promised funds have not been forthcoming.**

where around \$20,000. Building materials are costly and difficult to obtain; the civilian construction companies under contract to the Army suffer a 10 per cent turnover in personnel each month; thus, every 10 months they have to refill every job and the cost of bringing over a worker from the States and sending him home again is estimated at \$1500. The totals mount.

And the forces of nature certainly have not contributed to the economy. Every fall the "typhoon ladies" (probably the only girls whom airmen have positively no desire to see at any time) exact a terrific toll in the Pacific and few islands escape costly lashings. This last fall was no exception and during the season of the Big Winds, typhoons "Gertrude," "Ione," "Kitty," "Libby," "Martha" and others hit many of our bases and left a succession of unwelcome calling cards with a host of typhoon-happy inhabitants who have begun to think they can't win. Just as they began to recover from the disastrous effects of last year's typhoons, along came still another tempest and literally blew away almost all evidence of reconstruction progress.

To say that Air Force men are given to temporary discouragement is almost an understatement. More than once recently we heard this lament: "When I came here 18 months ago," said one Okinawa CO the morning after Libby had struck (Typhoon Day plus one, the men called it) "I inherited a bunch of junk. Now, after working our heads off all this while and finally getting everything in shape, I'm right back where I started—with a pile of junk!"

Iwo Jima is directly in the typhoon belt (in fact it is said that *all* Pacific typhoons report in to Iwo and receive directions) and consequently Iwo has had probably the worst luck of all. Veterans who recall the immediate post V-J Day set-up on Iwo with its some 6,000 quonsets (of which literally hundreds upon hundreds have since been destroyed by typhoons) and its 5 groups of fighters and 200 B-29s on runways at one time, would now find "The Rock" a deserted mining town. Successive typhoons have just about ruined the place and you will hear old hands remarking cynically that at any rate the total damage for each storm is diminishing. "After all," they explain, "there





If all North Guam's quarters were this fancy there would be less moaning. But there are only two such "permanent" units.

isn't much left to blow away." Just as power and communication lines were again restored after Kitty's visit this past autumn, Libby came with no warning and certainly no consideration. It struck the ill-fated spot again, this time with even greater fury. A piece of flying steel broke the wind recorder as it registered 120 knots and before the night was over weather officials estimated gusts at 200 knots. The day I visited Iwo, the Air Force CO, Lt. Col. Thomas H. Holbrook, announced that his headquarters was "open for inspection," as indeed it was, the bulkhead of his quonset office having been completely blown away along with a good deal of office equipment. The base theater had vanished, with only the cement foundation to mark its

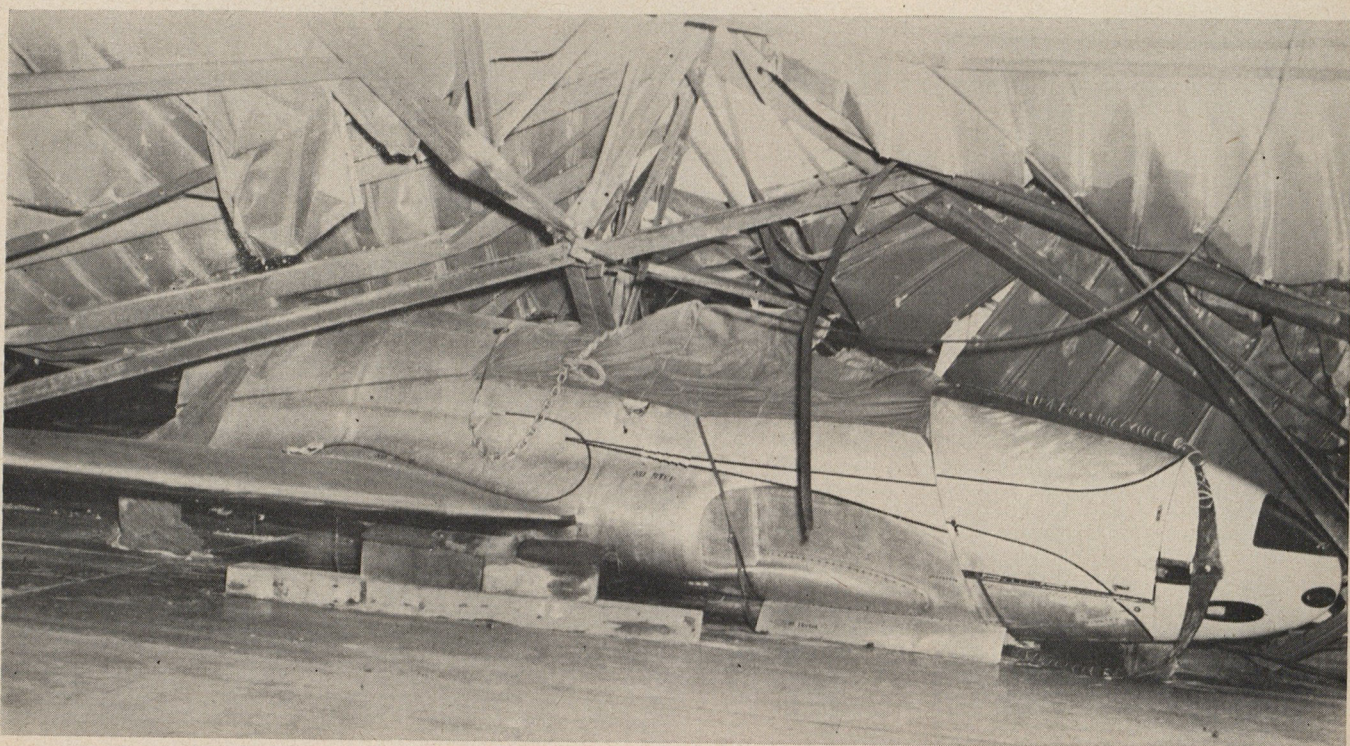
former location and troop quarters had taken a severe battering. The men had decided that typhoons ought to be rationed—one per island per season.

Descriptions of the continual repairing of these damaged "emergency" or "temporary" buildings, all erected before the war ended, reminded me of repeated patching of an old inner tube. The problem resolved itself in this question: "Why doesn't the Air Force build, once and for all, a permanent type concrete installation which could not be damaged by typhoons?" It might cost a few million but it would be a lot cheaper in the long run than all this costly and ineffectual repairing. We followed up the question, found that Washington had repeatedly been asked for funds to achieve this very

thing. Results: In one word—negative.

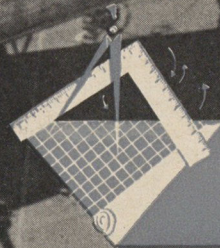
Despite the typhoon seige, we found that most of Iwo's residents did little or no complaining about their lot on a remote isle that, even at best, is far from a Pacific paradise. "Iwo is just Iwo, that's all you can say about it," said one officer who took the philosophic view. "*Somebody* has to stay here and do the job and we've been elected." Admittedly the loneliest spot in the Pacific, Iwo has become even more so since August with the removal (because of inadequate facilities) of all families to Guam, leaving Iwo with no women at all. Recreation is limited and camp shows almost nonexistent. As a result of all these factors, the tour on Iwo is a minimum of six months—on detached

(Continued on page 46)



A P-80 Shooting Star of 51st Fighter Wing lies in heap in Okinawa hangar—the result of typhoon rather than pilot error.





*Technique*  
AN AIR FORCE DEPARTMENT

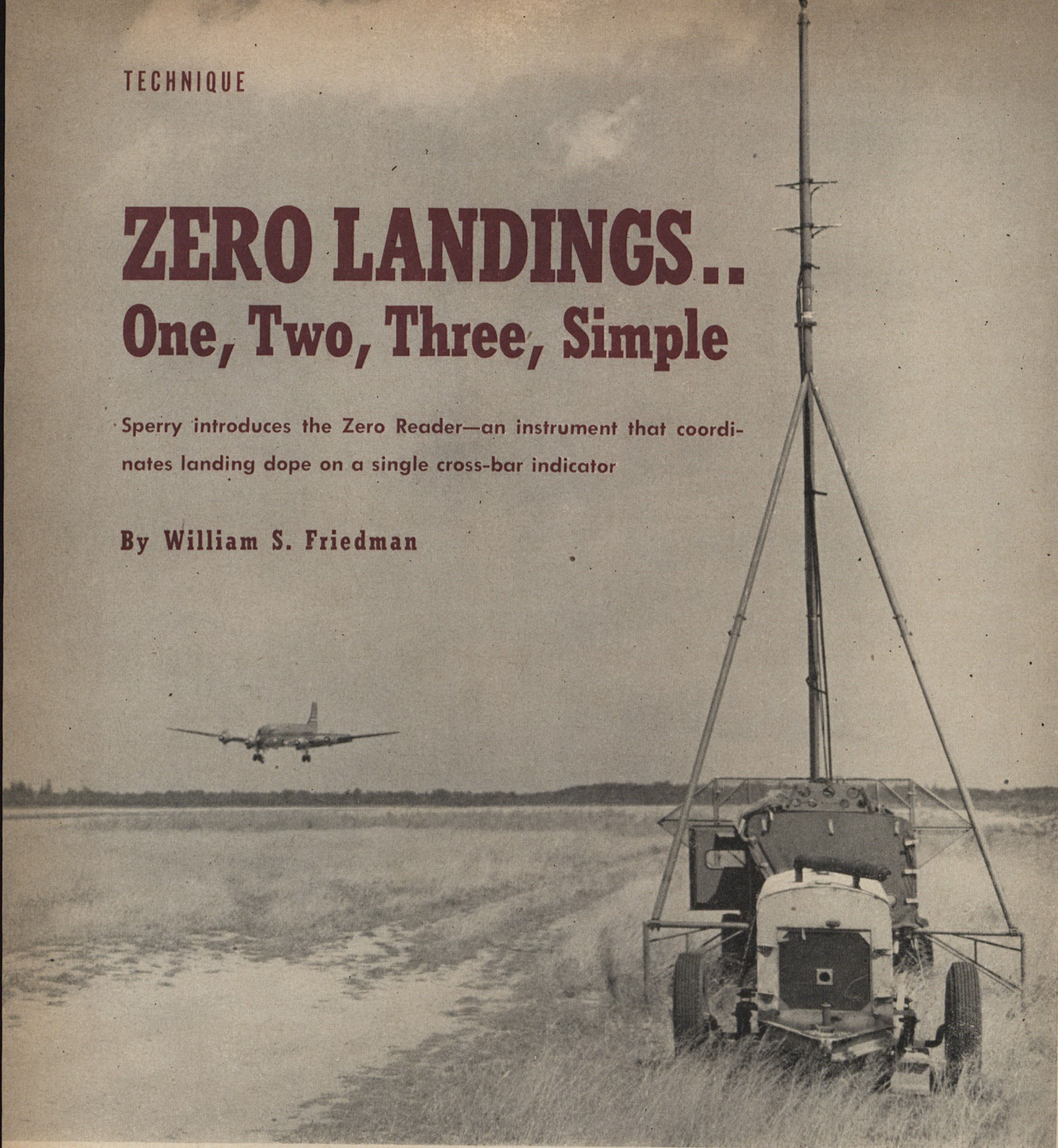


# ZERO LANDINGS..

## One, Two, Three, Simple

Sperry introduces the Zero Reader—an instrument that coordinates landing dope on a single cross-bar indicator

By William S. Friedman



**M**any of the nation's top airline pilots are giving the new fully automatic landing approach systems like Sperry's A-12 Gyropilot and the Bendix Flight Path Control, the frosty eye. Not that they would shun any device that would make the last stages of an instrument landing comfortable, but they still aren't convinced. Any automatic approach system is, at best, a complex mechanico-electronic device, subject to sudden failure or malfunction—so reason the skeptics. Should the pilot learn to rely on this system and let his manual

technique lapse or get rusty he might, some day, find himself in the soup with a load of passengers at a one-pass field. It is this mental hazard that has held up the widespread acceptance of automatic approach among the justifiably conservative airline skippers.

To aid in dispelling this fear, the Sperry Gyroscope Co. has developed a 20-circuit called a Zero Reader that can piece together information from conventional flight instruments plus ILS signals, and display the resultant reading on a single cross-bar indicator.

This means that the pilot, under instrument conditions, can relax and fly the plane by a single indication.

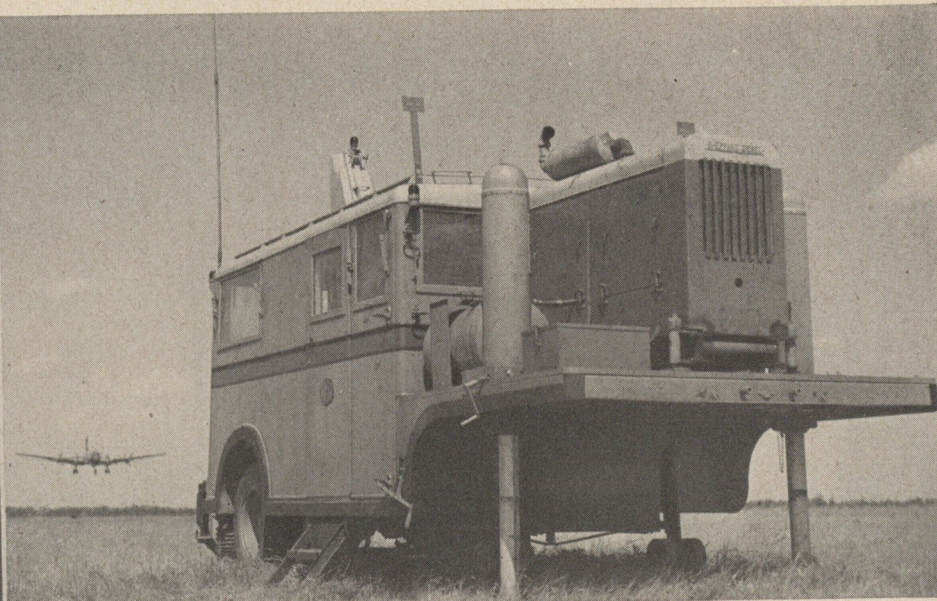
The Zero Reader was designed essentially as a standby instrument for the automatic landing approach feature of the A-12 Gyropilot. However, flight test crews at Sperry's base at MacArthur Airport on Long Island have discovered many new uses for the circuit and its ultimate impact on instrument flying may be much greater than was originally conceived.

As long as ILS has been in use, the





Zero Reader, top row center, shows pilot which way to move the controls.



Proof of the ease of operating the Zero Reader was evidenced recently when two aviation writers who had never piloted a plane made "good" approaches.

industry has been trying to develop a better way of displaying the localizer and glide path signals that are transmitted upward from the ground. Most of these consisted of one combination or another of all signals on a single dial, usually resulting in increased confusion. When Sperry engineers started work on the automatic approach accessory for the A-12 Gyropilot, they realized that "George" would be just as confused by the ambiguities of the ILS signals as any human pilot. It was therefore necessary to devise a circuit that could "think" for him. This work gave rise to the idea that the same circuit could think for the human pilot while it was occupied with the complex mechanical problems of the instrument approach.

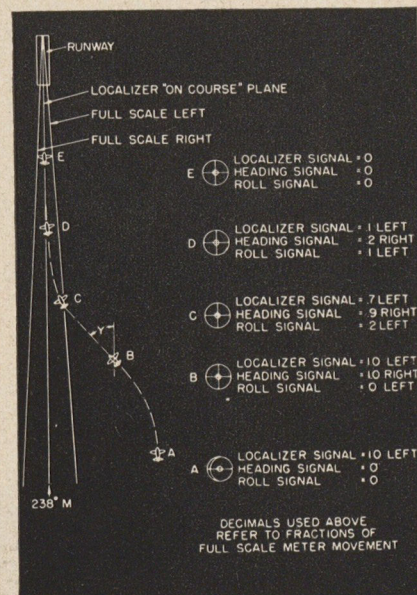
The Zero Reader is independent of the Gyropilot; failure or malfunction of this unit would in no way affect the Zero Reader. To obtain the zero reading, the indicator must be actuated by a composite signal whose characteristics involve the airplane response, the human response and reaction time and

the sure-control face deflection and forces. The method by which the Zero Reader marshalls interpretation, anticipation and bracketing into a single operation is accomplished by the following sequence of actions.

A full scale "fly left" signal on the conventional ILS cross pointer indicator represents an error in the plane's position with respect to a desired ground track. When the plane is turned toward the localizer course, the heading change signal measured by the Gyrosyn compass is arranged to neutralize the localizer error signal. As the plane proceeds on a new heading the localizer signal is reduced and therefore less compass signal is required to neutralize the vertical pointer. If the airplane is flown with the pointer constantly at zero, it will approach the localizer course without bracketing.

In order to provide additional anticipation and provide for accurate approaches to the localizer even in rough air, a bank signal is received from the vertical gyro and applied in the follow-

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Readings on Zero instrument are shown as they appear along approach.

A Douglas C-54 of the Air Force's All-Weather Airline makes perfect "blacked out" approach using Sperry instrument.





## Brand New Chase Plane Already Has Dramatic Past

In spite of "bad taste" left over from the war-time glider program, the YC-122 has been developed into highly efficient plane.

Behind the recent announcement of Chase Aircraft's new YC-122 cargo airplane is an interesting story. It began almost three years ago in the Glider Branch at Wright Field. The engineers went into closed session to talk about the future of the powerless aircraft. The future didn't look very bright.

In order to arrive at a solid program for future improvements and utility, the engineers "forgot" the term "glider" in their discussions and reports. Instead they called their projects Assault Aircraft. It had the effect of putting an olive in a glass, soaking it in gin and vermouth and calling it a Martini. Even the bigwigs in Washington liked Martinis. It wasn't too hard to revive interest in Assault Aircraft. The result was the Glider Branch engineers got the green light to go ahead with a new program.

Out of this came a metal-framed, plywood-covered XCG-14A, a big new glider incorporating crash protection in the nose, full aft loading instead of nose loading, tricycle landing gear to permit low-to-the-ground loading, a standardized level floor with simplified strap-down and tie-down systems and rampway to permit vehicles to run up and in, like putting them onto a car trailer. It also included increased fuselage space to permit hauling bigger equipment such as the 105mm howitzer instead of the 75mm field piece, which the gliders hauled.

The finished product looked pretty good. It had one big drawback—it was made of wood for the most part, increasing the maintenance problem. An almost identical design, the XCG-18, came out with all-metal fuselage, all-metal wings.

The CG-18 didn't even look like a glider. It had the appearance of an aircraft. Why not make it one? They found out in static tests of the structures that the wing would hold the engine nacelles and powerplants of a C-54. So they borrowed a pair, hung them on the CG-18's wings, used the space normally filled by retractable gear for 500-gallon capacity fuel tanks and—presto—they had a practical powered airplane. (Pardon the slip—an Assault Aircraft.) Thus was born the YC-122!

The glider that became a cargo airplane has another unusual chapter in its history. Unlike many other designs which are born, conceived and submitted to meet general requirements of USAF strategists and engineers, the glider and the resultant aircraft were the brain child of Air Materiel Command engineers, exclusively, concocted that day back in 1945 when the Glider Branch boys got together and decided to get in their two cents worth. Chase Aircraft, who built the airframes, has contributed many of their own innovations to make the aircraft a real performer. The C-122 is powered by two Pratt and Whitney R-2000 engines. At

a gross weight of 30,000 lb. and with a 10,000 lb. payload, it is designed to cruise at 200 miles per hour for nearly 1000 miles.

Something further on gliders is the fact that the AF already has plans for a super king-sized powerless aircraft which will be twice the size and weight of the biggest glider design flying today (the C-18A) and will accommodate virtually any piece of ground equipment up to almost 20,000 pounds in weight!

## Open New Highway to the Sky

Stretching straight as a yardstick for more than a mile and a half from one end of Patterson Field to the other is a ribbon of concrete—the world's largest and longest runway, a virtual highway for the 100-ton air giants.

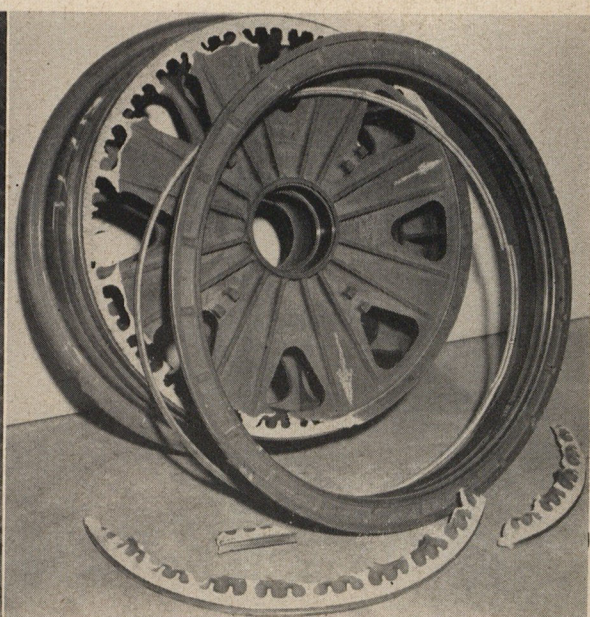
It was a year and a half in the building. A total of 450,000 barrels of cement and 535,610 tons of aggregate make up the 8000-foot long, 300-foot wide flight strip. Actually with 1000 foot additional clearance zone at each end the cement ribbon is 10,000 feet in length. Including this stretch and auxiliary taxi-ways the amount of concrete in the whole project is enough to make a massive highway 9 inches thick, 24 feet wide which would extend for 92.8 miles, or, from New York almost to Philadelphia. The entire concrete area covers more than 108 acres.

Reinforced with steel mesh and strong steel dowels, the runway will accommodate the very heaviest bombers that the Air Force now has or is contemplating.

Virtually every new "know how" went into the construction job which cost \$4,000,000. Special air entraining agents were mixed with the concrete to help prevent damage to the surface from



Before and after fotos of Northrop XF-89 wheel assembly subjected to a static "burst" test by Goodyear Rubber Co. Unit blew apart



under 800 pounds pressure per square inch. Normal flight load never exceeds 280 pounds per inch.



# TECH TALK

By Douglas J. Ingells

Size seems to be creeping into the air picture more and more according to one general, even into our guided missile program. "To build a long-range missile," he said, "capable of point to point bombing anywhere will require a projectile larger in size than any bomber we have today. It will cost more and be far more complicated to construct in line with present skyrocketing materials and labor costs."

With jet planes and rocket planes breaking one record after another, officially and otherwise, the AF is attempting to set up its own recording methods for making some of its speed runs count in the record books. Since high speeds attainable today must take into consideration temperatures, altitudes, distance, air currents and many other factors, official record standards may be revised. Already the AF has devised test recording means which show decided improvement over previous methods of measuring an airplane's speed over a predetermined course.

New electronic and photographic records have these advantages: timing accuracy down to 1/1000th of a second, whereas previous requirements were for 1/500th of a second; course accuracy down to 1 part in 600,000 as against 1 part in 50,000; accuracy of speed expressed to the nearest 1/10th kilometer per hour as against 1 kilometer per hour.

According to one engineer, whose unhappy lot it was to reject the idea with apologies, a crackpot during the war suggested to the Air Force that we build airframes out of concrete. He showed conclusively that some of them wouldn't weigh any more than some planes under consideration. His secret was one to top all secrets: The concrete was to be applied in layers. As soon as the last layer was applied—while it was still wet—the plane was to take off and let the airflow make its own configurations. Thus you would have the perfect fuselage and wing curvatures!

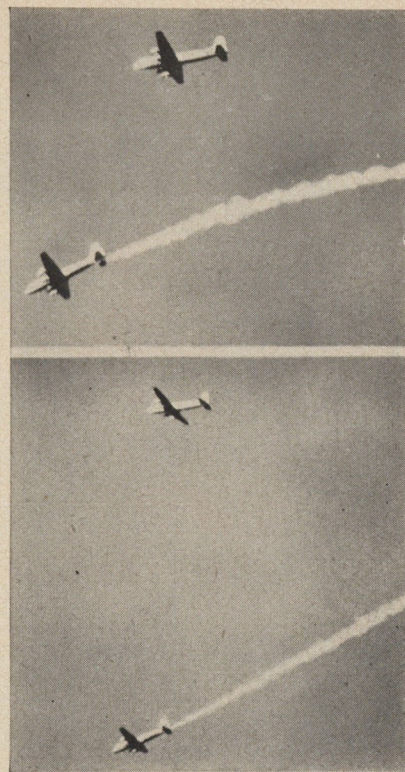
Hair-brain, you say? Maybe so, but in the meantime we're going right ahead spending millions to put together huge Navy carriers of steel and iron to make floating runways when, as everybody knows, you make runways out of concrete!

Some interesting notes from the Industrial Planning experts: A total saving of about \$10,000,000 is expected during the building of the 70-group Air Force (if it isn't abandoned) through the mechanical production of only one-item material for radomes. Fabrication previously done by hand from a honeycombed glass cloth and plastic cost approximately \$80 per cubic foot. The item can now be produced mechanically at only about \$20 . . . Use of giant extrusion presses to stamp out interwing sections can cut the cost from \$5.40 per square foot to approximately \$1.20 . . . Through the substitution of forgings for fabricated parts—in some aircraft structures—as many as 2500 man-hours already have been saved per 1000 pieces of fabricated section . . . Other methods are under study that may cut the cost of blading in a gas turbine, which now eats up about ⅓ of the complete engine's cost, to 1/10.

A plant in Alabama has been trying for more than a year to get Adam Stolzenberger who recently made the headlines with his "toy" ornithopter to let them build a full-scale model and see if they can't perfect a man-carrying machine along the same lines . . . "Stolz," by the way, has a super-duper design for a flying automobile. It's all one machine, no hooking on or taking off the wings like on previous flymobiles. This one is really the "bird."

The much talked about C-54 automatic airplane which about a year ago made history by flying the Atlantic NO HANDS is soon to be back in the air again after extensive modifications and improvements that

(Continued on page 27)



Trailing smoke to mark flight path, a C-54 with props in reverse makes hasty descent while sister ship lets down as fast as it can under "emergency" conditions. Smoke ship landed in half the time.

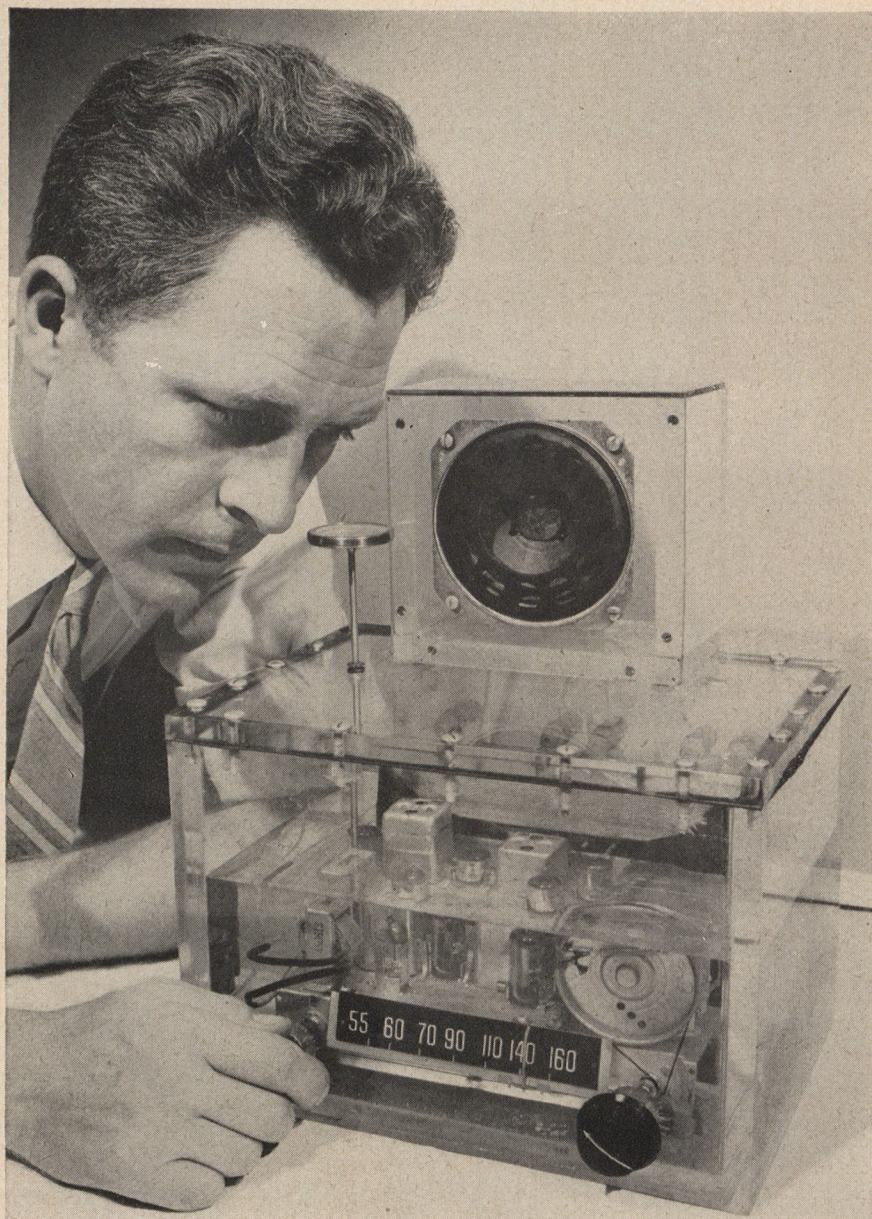
use of calcium chloride or other deicing compounds used sometimes to keep runway surfaces clear. Contraction joints used a special asphalt and rubber compound which experiments have shown provide for high adhesive qualities.

## Watch That Opens Parachute Introduced by Switzerland

The Swiss have reportedly developed a new type of parachute watch which is said to eliminate the human element in pulling the ripcord of a parachute. The operation of the watch is described as follows: You set a dial at whatever altitude you want the chute to open after jumping. A small wire loop is pulled out automatically when the parachutist jumps from the airplane—and this activates the watch which begins ticking. A cable which serves as the ripcord passes through a hole in a metal tube in the gadget and at the specified altitude a small sharp knife comes down through this tube, severing the cord and permitting the parachute to open.

Apparently the advantage of this system over the automatic paratrooper's system for opening a chute, as used by the Allies in the last war, is that with the automatic watch system the chute can be set to open at whatever altitude desired. American paratroopers, for example, used a chute that opened





## TECHNIQUE CONTINUED

when the trooper was 15 feet out of the plane regardless of altitude. The watch for this device is made by a well-known Swiss watch factory and many of the parts are standard to the ordinary timepiece.

## Wright Has Reducing Program

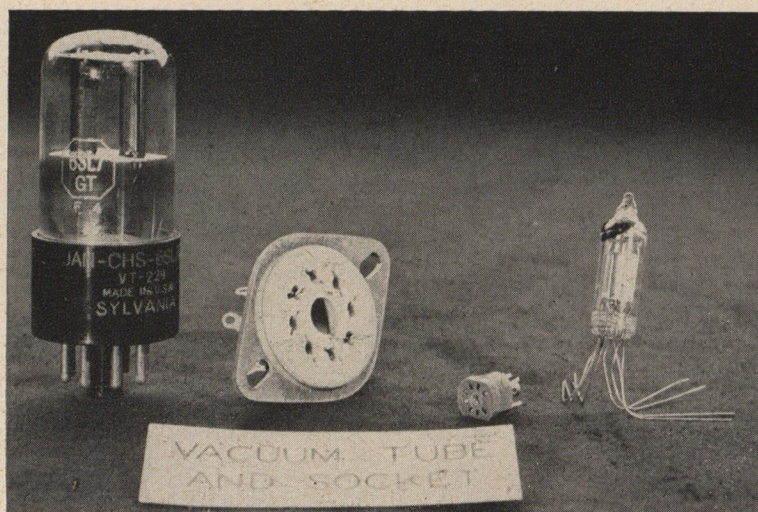
A "reducing program" is underway at the Electronics Sub-Division of Air Materiel Command. The slimming process is being applied to components of electronic equipment in an effort to meet the reduced space available in new streamlined aircraft.

Increased flight speeds and precision bombing call for more and more electronic equipment, but the slim, sleek lines of new planes leave less and less room for this equipment.

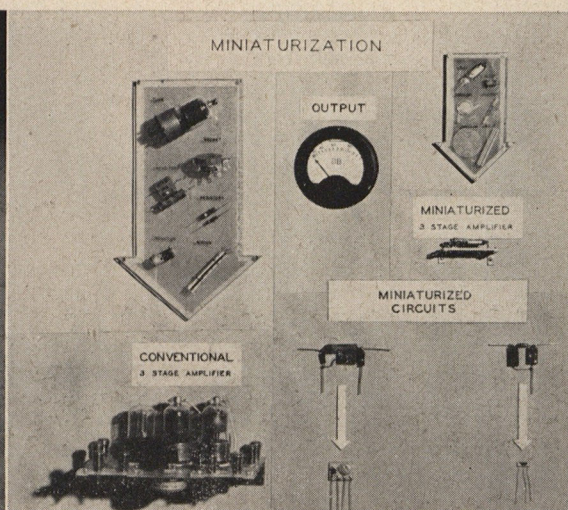
The Air Force is meeting this challenge by a process of "miniaturization." By reducing the size of the component parts of electronic equipment, and by devising methods which permit closer placement, the Components and Systems Laboratory of AMC's Electronic Sub-Division hopes to be able to reduce the over-all size of electronic equipment.

The heart of all electronic equipment is the vacuum tube. Wright engineers have designed vacuum tubes which are 100 per cent as efficient as those of standard size but which have been reduced by 80 per cent—that is approximately to 2 inches in length and the diameter of a lead pencil.

As part of AMC research to discover means of cooling electronic components, a radio set (left) is immersed in Freon. See "Reducing" story above.



Space-conscious engineers at Wright have built vacuum tube (right) 80% smaller than custom model (left) but 100% as efficient.



Miniaturization progress is shown in comparison of three-stage amplifier systems. Output is same.



## TECH TALK CONTINUED

have made its automatic wonders automatic. New installations really make it a push-button aircraft, whereas previously there was quite a bit of manual operation to set some of the controls.

To make runway markers visible about piled up snow drifts or other obstacles, a 15-inch plastic refraction rod has been developed to bring them out of hiding. The rod is cemented on top of a plastic relamping cover used for throwing the light directly upward when the runway contact lights become covered with snow, ice or water. It is so designed that it will topple under a five-pound impact to prevent damage to even the smallest airplane which might accidentally strike it; also damage to the rod itself.

Measurement of fuel spray patterns of injection nozzles for internal-combustion engines is now being studied with ultra-high-speed photographic equipment. Spray characteristics so far revealed permit petroleum technologists to determine, by a new process, whether the spray patterns are correct to obtain the most efficient combustion.

A new device which optically simulates targets at ranges from 855 yards to infinity, introducing the corresponding angular parallax between two beams of light at a separation of only 15 feet is being used by the Ordnance Department, US Army to test optical range finders. Some aircraft optical accessories for cameras and gunsights may also get tested with the new device.

The USAF at Wright Field, too, is going ahead with its research and experimental program for an all-glass airplane. A year or so ago they had solved the riddle of making a satisfactory fuselage. Now they're baking the wings in an oven, molding them in a simplified method. Wings are made of a glass-plastic laminate that is lightweight, tough, and lends itself ideally to streamlining. Glass cloth, in various colors is also being tested with the idea of use in aircraft upholstery. It has new high abrasion resistance, gives smooth appearance and comfort, helps eliminate fire hazards and virtually is free of effects of climatic changes, fungi and pestilence breeding grounds.

The advent of big planes like the B-36, C-97, and others to come, incidentally, has put a new importance on research and experimental work to "comfortize" aircraft cabins. One thing, for example, that is getting undivided attention is the elimination of sharp corners and dangerous protuberances that make a virtual obstacle course of the plane interiors, resulting sometimes in torn clothing, scratched hands, and other bruises inflicted on crew members who necessarily have to move about from station to station. Another program that every day is gaining in importance is the study of new seat designs which already has spotlighted several innovations such as adjustable back incline, improved cushioning, tailored fits, swivel mounts to make it as comfortable as possible on pilots and other crew members who have to ride for long hours in the cramped place . . . The next step will be a pair of slippers and a pipe. And if you think that's stretching a point, the other day the parachute people got a proposal which, for lack of a better name, we'll call "the parasuit." It consists of a flying suit with the parachute stuffed in the lining. Pull the ring and it opens like a pair of button-bottom flannels!

The cost of high speed research incidentally was very aptly put the other day by a top-notch engineer and test pilot. "Figuring roughly on past experiences," he said, "the estimated cost of increasing an airplane's speed as little as 20 miles per hour may be figured as one year of research and development and \$20,000,000." Augmenting this is an interesting bit of recollection brought to light by E. H. Heineman of Douglas Aircraft. World's speed records have increased at the rate of only 14 miles per year during 45 years of aviation . . . Latest of the high-speed research planes is the Northrop X-4, one of the smallest aircraft ever built for the USAF. Termed a "sonic zone" laboratory plane its purpose is to carry on research in the very high subsonic speed range.



Unlike young man's pants above, the newest airplane tube introduced by Firestone is leakproof. It holds air four times longer than usual tube.

Rectifier tubes have been reduced in size by 95 per cent and in weight by 92 per cent. Power transformers, which in standard size weigh 6.06 pounds and have a volume of 65.0 cubic inches, have been miniaturized to 2.19 pounds and 28.8 cubic inches. A standard 3-stage amplifier which measures 6x4x4 inches has been reduced until it measures about the size of a saltine wafer.

Reduction in size of components is only one method used to achieve miniaturization. Electricity passing through components of electronic equipment creates heat which must be dissipated for satisfactory operation. It is common practice to leave sufficient space for ambient air to cool the components. Since space is at a premium in miniaturization, other methods of cooling must be devised. Tests have indicated that it is possible to use standard sized components and still achieve smaller over-all measurements by using forced cooling methods which will permit closer placement of parts.

Freon, a liquid commonly used in refrigeration, has been used in experiments on cooling electronic components. An ordinary 50 watt light bulb soon becomes too hot to touch, but when sprayed with Freon it remains completely cool.

On display at the components and Systems Laboratory of AMC's Electronic Sub-Division is a radio set completely immersed in cooling Freon. Not only does the set operate perfectly in its liquid bath, but it is predicted that it will outlast sets which operate under ordinary conditions.







# GIANT OF THE WEST INDIES

Air Weather Service has developed a new way of "tying down" the world's most vicious hurricanes. It's done with mathematical equations

By Clarence Owens

**T**O MOST of us the mention of the Caribbean Sea brings to mind romantic visions of rolling seas, whipped gently by soft tropical winds, with the vast expanse of blue studded enchanting palm-strewn islands of the West Indies. In reality, nature has provided a poignant paradox amid the lavish beauty of these southern waters. At the beginning of summer each year this contradiction of nature begins to assert itself. The hurricane—a veritable "Giant of the Indies"—stirs itself as if from a long winter's sleep and hovers as a constant and potential threat to all coming within its domain.

Of the more than 1800 thunderstorms of varying intensity continuously in progress over the earth's surface each day, none reaches more devastating proportions than the hurricane born in the Caribbean and South Atlantic.

With no apparent provocation and with a suddenness that belies any great degree of forewarning, the gentle winds slowly begin to coil themselves into a continuous mass of revolving force. At the same time, while generating power, they begin their stealthy movement forward, usually to the west, then to the north. The larger storms assume tremendous proportions: the circular pattern of the winds revolve in excess of 150 miles an hour near the center, with winds of 75 mph extending out as far as 50 miles, and destructive gales reaching over 300 miles from the center. As if the powerful winds are not enough, the hurricane harbors in its revolving mass torrential volumes of driving, swirling rainfall.

Fortunately for those inhabiting the land areas subject to the vagaries of such storms, it is a characteristic of hurricanes that the energy upon which they thrive and build depends upon the latent heat of condensation that only exists over the warm ocean areas; too, they cannot resist the counteracting frictional forces of the atmosphere peculiar to the land areas. As a consequence, once they begin to move overland or over cooler waters, they are rapidly dissipated. The very fact that the storm requires the warm currents of the ocean to nurture it, permitting it to garner and maintain its strength, has produced, through the years, a major problem for meteorologists in dealing with this unpredictable phenomena. The old methods of making observations from sparsely scattered land stations, with dependence on reports from ships at sea in discovering and follow-

ing the movement of the hurricane, proved seriously inadequate.

Wartime aerial operations across the North Atlantic brought forth a method of meeting this everpresent challenge. In the absence of adequate fixed land observation stations in the far north, a system of aerial weather reconnaissance was devised which quickly proved its worth in lessening the hazards for the mass movement of aircraft. Aerial hurricane reconnaissance was begun on an irregular, spasmodic basis in 1942 and 1943 in the Gulf, the Caribbean and South Atlantic, and soon thereafter, in 1944, regularly scheduled operations were undertaken.

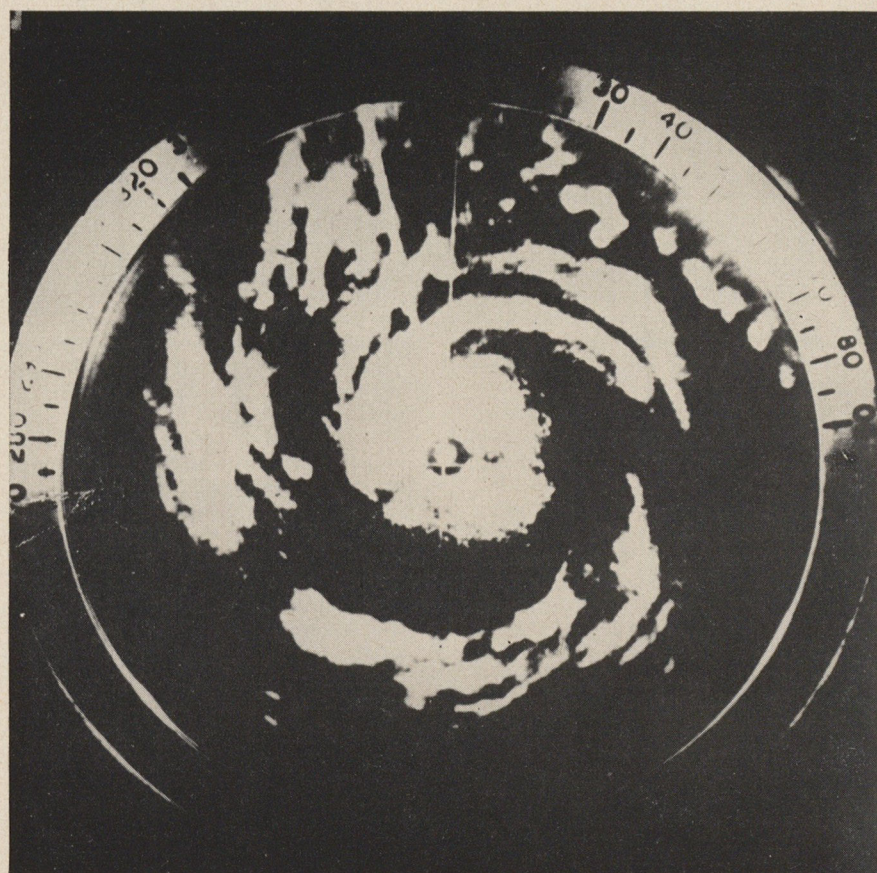
Today the reconnaissance program is under the direction of the Air Force's Air Weather Service, an agency of Military Air Transport Service. Air Weather Service maintains a vast network of approximately 200 fixed weather stations throughout the

northern hemisphere, manned by over 9000 officers and enlisted airmen. Brig. Gen. Donald N. Yates has served as its Chief since January 1945.

In addition to hurricane reconnaissance from Bermuda covering the Caribbean, North and South Atlantic and the Gulf, other Air Weather reconnaissance units operate at strategic points in the northern hemisphere: in the Arctic regions where scheduled flights are made over the north pole and return; off the California mainland into the Pacific, and in the far western Pacific, where typhoons are tracked from Guam.

In the early days of experimenting with aerial reconnaissance as a method of tracking hurricanes, and preceding the formation of regular, trained units, several flights into hurricanes were made by personnel interested in obtaining first-hand information concerning the inside of these storms. One of the

The "eye" of a Caribbean hurricane spotted on an Air Weather Service scope.







A nonchalant crew of nine hurricane hunters listen casually to briefing before a "routine" reconnaissance flight.

first of these flights was made five years ago in September 18, 1943, into a Gulf hurricane off the coast of Texas. Weather instruments were taken along and a record kept of the observations made. According to the reports, "An altitude of 30,000 feet was reached, at a position above the assumed 'eye' before the flight into the actual storm was attempted. Some clouds towered above to an estimated height of 45,000 feet, while the sea below could be seen, with whitecaps and waves clearly visible. Descent was made to 12,000 feet, when shortage of fuel curtailed further investigation. Only mild turbulence was encountered and the storm appeared to be breaking up near Dallas, Texas." This flight contributed some of the first concrete data on upper air observations of hurricanes.

In 1944 saw the beginning of organized hurricane reconnaissance by the Air Force and the inauguration of its parallel responsibility, on a coordinated basis, in the present-day Joint Warning Service.

On September 11, 1944, a severe hurricane was slowly twisting its way up the Atlantic coast. B-25 hurricane reconnaissance aircraft of the 9th Weather Squadron took off from Morrison Field, Fla., determined to attempt a "fix" on the storm's position by flying around the center, rather than straight through the entire storm. Following is the account recorded by a flight crew member: "An easterly course was taken, until the wind shifted, when a southerly heading was charted, and driving wind and considerable turbulence was met. After another wind shift, the course was changed to east and heavy rain with extreme turbulence made it difficult to hold level flight or maintain a set course. Heading was changed to the north; visibility

became nil; the plane was dove to pick up the ocean in order to make a drift reading but it was necessary to pull the plane up, due to the possibility of excessive altimeter error. One glance at the sea indicated that it was much closer than the altimeter reading showed, with an estimated wind speed of 120 miles per hour. The turbulence became excessive; equipment came loose; the airplane could not be controlled. The vertical velocity was 1000 feet per minute with a speed of 250 miles per hour, accompanied by a violent yaw. A change of course to the west finally took the plane safely out of the storm, with no major structural damage, conveying a vital contribution to man's knowledge of the hurricane."

Let us go through the same storm again—three days later, this time to explore the eye. As described by another eye-witness account: "Penetration was again made on September 14 after the hurricane had entered an area off the coast of North Carolina, to attempt to reach the eye, unless turbulence became too severe. As flight toward the estimated center was made, the turbulence changed from light to mild to sever. Extremely heavy rain was encountered, penetrating the airplane, and visibility became nil. A strong, steady downward current of air existed constantly from the outer edge and the waves were observed to be of tremendous height, scattering spray to an estimated height of 200 feet. It was necessary to keep the airplane in a constant climb because of the down-drift, with a loss in airspeed of 70 miles per hour. Suddenly, at a distance of 50-60 miles from the outer edge of the hurricane, an area of rising air was found, with dense clouds below, thin clouds above, and the sun faintly visible. The sur-

rounding winds could be heard roaring around the circumference of the area of quiet, and it was deduced that the eye of the storm had been located."

The general concept of the winds of the hurricane underwent a change as a result of this and a subsequent flight through the storm and into the eye. Contrary to previous beliefs, it was demonstrated that throughout the entire area, except the center, the winds were descending, while in the center the winds were shown to be rising steadily, rather than falling. Only hypotheses had been possible before but now the meteorologists were given definite data with which to theorize.

The hurricane season extends from June 1 to November 30, and during this period each year since organized reconnaissance was begun, Air Force aircraft have visited every disturbance offering a potential threat to the coastal areas.

Air Force has adopted RB-29s to perform this task due to their long range and ability to reach both high and low levels. The aircraft are converted into flying laboratories, equipped with every modern device for observing and plotting the weather, and reporting its movement and characteristics. The crew of a weather reconnaissance aircraft normally consists of nine men, each a highly trained expert in his particular department. In addition to the pilot, copilot and navigator, there is the weather observer, engineer, radio operator, two scanners, and a radar observer.

Last year Air Weather Service aircraft spotted and tracked 11 major storms of varying intensity in the Caribbean and South Atlantic. During the 1947 season the 8th Weather Group's 373rd Reconnaissance Squad-

(Continued on page 42)





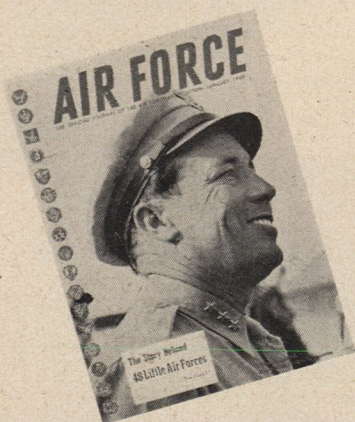
*In Reserve*

AN AIR FORCE DEPARTMENT





General Quesada joins a post-mission bull session after the war's first fighter-bomber operation from German airstrip.



## THREE STAR PILOT for the RESERVE

With a candor peculiar to men disciplined in combat, General Quesada admits the Air Reserve program has been pretty lousy

The official mimeographed biography of Lt. Gen. Elwood Quesada indicates that this is not the first time he has sat behind a big oak desk. In the early thirties for example, he served as Assistant Military Attache to Cuba. Later in the same decade he was assigned as technical advisor to the Argentine Air Force. Both jobs were characterized more by administrative detail than operational activity. There have also been previous stints in the Pentagon—one shortly before and one shortly after the war. But regardless of past experience, General Quesada has not yet learned to handle a 70-inch desk nor a green leather chair with the same grace and elegance he does the controls of a Lockheed Shooting Star.

As the USAF's new Special Assistant to the Chief of Staff for Reserve Forces he has been given a Pentagon office replete with all the splendor his rank and title call for. In acknowledgement he has temporarily at least discarded his beloved GI field jacket and is now wearing in its place a GI battle jacket—adequate difference, he seems to feel, to headquarters swank.

In the few short hectic weeks he has been in Washington his secretary has already found out this about him; he never feels as much at home in his own office as the officers who troop in and out to see him. He will sit on about one tenth of his chair, lean forward and nervously bend a paper clip out of shape as he talks. As staff problems

are mulled over and satisfactorily resolved, he has an unconscious habit of twisting the clips back as they were originally—a sign that things are in order and as they should be.

It would be wrong to indicate that Quesada—the same guy who flew the Question Mark with Major Tooey Spaatz and Captain Ira Eaker for an endurance record of seven days back in 1929; the same guy who flew combat mission after mission in the campaign of Tunisia, Sicily, Corsica and Italy; the same guy who became the one and so far only Lt. General to fly a jet—it would be wrong to imply that this man lacks assurance and confidence. It's just that when President Truman issued an order for a more "vigorous"



reserve program last October, General Quesada was handed one of the most twisted up "paper clips" any man has ever been given.

Where will General Quesada begin?

First he is getting under way by admitting to himself and anybody who asks that what has been done so far has been pretty lousy. "Let's face it," he says, "the past program has been poorly conceived and poorly executed."

At present, according to the best estimate the Air Force can make, there are about 448,000 in one state or another of active or inactive Reserve duty. The original plan adopted shortly after the war and without benefit of precedent, was to give some training to as many of that number as was humanly possible.

To this end all manner of devices were employed. But after about two and a half years of trying to do the impossible the Air Force decided it was time to stop and start over.

The thing General Quesada wants understood now—especially by the Reservists themselves is this: While there are 448,000 officers and men in the Air Reserve there are only funds, equipment and facilities under the present budget sufficient to train about 15 percent of that number, or roughly 65,000, to any degree of proficiency. And the decision has been made. Rather than make any further attempt to train the larger number, the Air Force will concentrate on training the 15 percent to the highest possible degree of efficiency. The 85 percent might as well get ready. They can stay active by taking extension courses and by participating in summer maneuvers. But as far as getting an M-Day assignment or belong-

ing to a T/O&E unit that works, flies, and gets paid on a regular basis they haven't much chance.

You can blame it on insufficient funds if you want to, although General Quesada doesn't put it that way. "The budget is the determining factor in figuring the magnitude of the program" he says. If Congress thinks the economy of the nation will only support a Reserve of 65,000 Quesada will not say they are wrong. To train the entire force of 448,000 the Air Force estimates it would take all the equipment and facilities of the entire Air Force plus half again. This fact gives some indication of the impossibility of the task originally undertaken.

How will those who have to be out take it? General Quesada says "you tell me." As soldiers he figures they would rather have the straight dope.

How will the 15 percent be selected? Like this: In the near future headquarters USAF plans a re-distribution of Air Reserve T/O&E units to coincide with the areas of greatest population.

Theoretically there will be about 65,000 vacancies in these units. Actually there will be far less, because many of the T/O&E units already located in large towns are already filled. The vacancies that actually exist will be filled largely on a first come first serve basis. When the limit is reached that will be it. No one knows better than General Quesada that such a plan denies to some of our best and most enthusiastic Reservists who live in outlying communities the privilege of working and flying with the Reserve. But on a practical basis it can't be worked out any other way.

This then, is Quesada's first big move.

Following this, will come other important steps. One will be to see that all Reserve forces—Air Guard, Air Reserve, Naval Air Reserve and so forth are afforded the same pay and training privileges. In the past, differences between the Navy and the Air Force, in the manner of scoring training periods have resulted in considerable friction. In the near future it is planned that all Reservists—regardless of branch—will have the same minimum and maximum pay training periods, and that each service will score and time training periods in uniformity with the others.

Another important move under consideration is the combining of Air Reserve facilities with either the Air Guard or the regular establishment. In other words the Reserve would use the same fields and planes as the Air Guard or the regular AF. Such a move would make for considerable economy and would also give the Reserve tactical planes to fly instead of trainers.

In the interim, the Reserve is being given a substantial number of tactical type airplanes of its own. The Air Guard comes first because it is an M-Day organization. It is supposed to be ready to move out in units on almost instantaneous notice. The Reserve, on the other hand, is an M-Day-plus organization. With few exceptions its T/O&E units will not be activated as such on M-Day. Rather the personnel in these units will be used as a pool for assignment to units of the regular Air Force. For this reason the Air Guard gets the first crack at combat aircraft. But as fast as possible General Quesada intends that the men of the "new" Reserve will get them too. The paper clip is being put in shape.



Under normal conditions golf is Quesada's favorite sport. But in England during war he was satisfied with baseball.



"Pete" Quesada was first and so far only Lt. Gen. checked out on a jet. He has total of about 10,000 pilot hours.



# Forrestal Has Plan to "Invigorate" Reserve Force

**Makes eleven major recommendations to President including the federalization of Air Guard and 50% boost in Reserve budget**

Secretary of Defense James Forrestal has submitted 11 major recommendations on the overhaul of Reserve forces to President Truman in response to the latter's October directive that a "vigorous" Army and Air Force Reserve program be instituted. The Secretary's "progress report" clearly indicated that there were far more items on the "action to be taken" file than there were on the "action completed" spindle.

Foremost on the list was a recommendation for a hike in Reserve and National Guard training appropriations of 50 per cent. Next was the controversial recommendation that the Air National Guard be federalized.

On the action taken side, Mr. Forrestal reported that the Joint Chiefs of Staff have started to re-examine the priorities on equipment, facilities and instructors accorded the Guard and Reservists. The Munitions Board, the report said, also is attempting to bring about increased joint utilization of existing facilities.

Including the two above, the report contains 20-odd recommendations. Others pertinent to the Reserve and Air Guard are:

1. Legislation to provide personnel of the National Guard and Organized Reserve Corps with a common federal appointment and enlistment.
2. Equalization of disability benefits for Reservists of all services.
3. A simple method for transferring individuals between the Reserve components.
4. Legislation providing for joint use of facilities by the several Reserve components.
5. Construction of additional armories and other facilities.
6. A comprehensive Officer Training Corps bill developed jointly by the three departments and which would be monitored by the Air Force.
7. That provisions of the law governing the Reserve Officer Training Corps programs be uniform and that the name "ROTC" be changed to "Officer Training Corps."
8. That the statutory minimum age for appointment to commissioned ranks be 18 years. The Navy's present minimum age is 17; the Army and Air Force 21.

9. That the services be allowed to enter into contracts with extended active duty Reservists and that the contracts provide for severance pay in event of premature termination.

The defense officials have decided that the fight sure to ensue over any recommendation that the ground National Guard be federalized would be too great and cause too great a schism in the military setup.

However, they feel that the National Guard could not be welded quickly in-

to an effective M-day force unless there is greater federal control over personnel, equipment and facilities leased or constructed with federal funds. It is hoped that provisions short of complete control will effect this.

With reference to the Air National Guard the defense officials point out that it is almost exclusively confined to national preparedness and is unsuited for the normal peacetime state mission of the Guard. Fighter and bomber groups, some jet-propelled, would be of little value in maintaining domestic law and order, they say.

Training of the Air National Guard under the present arrangement it is pointed out, is impractical when the components are under 48 different "commanders in chief" and air warfare cannot be restricted by geographical boundaries.

## 62nd Fighter is sixth Air Guard Wing to finish Organization

The 62nd Fighter Wing has become the sixth Air National Guard wing to complete its organization, according to a mid-December announcement of Maj. Gen. Kenneth F. Cramer, Chief of the National Guard Bureau.

Federal recognition of the 1812th Engineer Aviation Company, Burbank, completed organization of the 62nd Wing and of the 24 component units located in California. The remaining four units are in Arizona.

Headquartered in Burbank, the 62nd Wing is commanded by Brig. Gen. Leonard E. Thomas. It consists of a fighter group of three squadrons, one light bomber squadron and supporting units and has an approximate strength of 2300 officers and men.

"The National Guard now has organized better than 78 per cent of its projected Army and Air units," General Cramer said.

## VA reminds matriculating GIs to get all the dough due them

The Veterans Administration sends out this reminder to all ex-GIs: If you are presently going to school under the GI Bill of Rights and have acquired dependents or additional dependents since you made your original application for subsistence you are entitled to increased subsistence payments. To be sure of maximum benefits the Veterans Administration should be notified as soon as possible after additional dependents are acquired. The notice should be sent to the Veterans Admin-

istration regional office where your individual records are kept. It should be accompanied by legal evidence, such as a certified copy of public record of birth, baptism or marriage.

Subsistence payments will be increased as of the date legal evidence is received by VA. Officials emphasize that payment will not be made retroactive to the date the veteran acquired the dependent.

## Happy New Year. Reserve retirement payments start now

Although the 80th Congress failed to appropriate funds to cover the cost of Reserve retirement during the fiscal year 1949-50, the Air Force along with the other branches of the service, has completed arrangements to begin payments January first.

The Army and the Air Force have been authorized by the Bureau of the Budget to use money from the 1949 appropriations to begin non-disability retirements. It is estimated that about 2,000 men who have served in the Army and the Air Reserve and have reached the age of 60 will be eligible to receive retirement pay beginning the first of this month.

## AF outlines W/O assignments

The Air Force has outlined procedures to be used in the assignment of individuals recently appointed or selected as Regular warrant officers.

Those appointed from enlisted status will be reassigned duties consistent with their career warrants and in vacancies authorizing a warrant officer or junior officer. Appointees will remain assigned to the station at which assigned when appointment was received if proper vacancies exist there. Except for reassignment to overseas service, a period of 18 months will normally be served at his original station before a warrant officer is eligible for reassignment.

Reserve officers on active duty who receive Regular warrant officer appointments may remain on duty as officers in the assignments being performed, but assignments within the fields of their career warrants are encouraged. When officers revert to their permanent warrants, assignment to career fields is mandatory.

## Guardsmen may take cadet training with one year duty

Headquarters of the National Guard Bureau announced last month that qualified Guardsmen may now apply for aviation cadet training, serve one year on active duty in the Air Force after completion of their training, and then revert to their original National Guard unit. Prior to this, it has been



necessary to serve a minimum of three years after graduation and commissioning.

To qualify, Air Guardsmen must be between the ages of 20-26½; be able to pass the standard Air Force qualifying examination, and have at least one-half of the credits necessary for a degree at an accredited college or university or be able to pass an equivalent educational test. Officers will retain their Air Guard status and grade while in training, and airmen will be trained as Aviation Cadets. Applicants may be married, but no housing will be provided for dependents.

The first Aviation Cadet course open to Air Guardsmen begins March 1.

## AF needs civilian medics and dentists for overseas duty

The US Air Force is now offering overseas opportunities to registered physicians and dentists in a civilian capacity. Especially desirable are applicants who have completed a tour of at least two years active duty with the military service. They will serve both military and civilian personnel.

The base pay for these positions is \$6,235.20 per annum with a cost of living allowance for each theater. Applicants are required to remain overseas in most theaters for a period of two years. Travel to and from the theater is arranged and provided by the USAF.

Application for these positions should be made direct to the Field Extension Office, Overseas Affairs Division, Directorate of Civilian Personnel, Wright-Patterson Air Force Base, Dayton 1, Ohio. Detailed information regarding employment and living conditions will be furnished upon request.



Last month at Brookley AFB, Mobile, reservist William Fitzhugh (right) a Doolittle Tokyo raider was honored by a review headed by Gen. R. H. Taylor.

# IN RESERVE LETTERS



## The SOP of AR and NG

*Gentlemen:* Being a nurse, and having served with the Air Force and ATC Air Evac Sq., I am interested in getting a Reserve commission. Please tell me how I may obtain it.

Catherine M. Flaherty  
Brooklyn, N. Y.

• *Appointments of former nurses may be made only in the Medical Corps which comes under the jurisdiction of the Department of the Army. Upon receipt of commission, application for training with the USAF Reserve may be submitted.*

*Gentlemen:* I have been in the Reserve since November 1945, and now I am confronted with a very unhealthy situation if I am to go on a two-week's active tour duty. My 31 belt line does not go very well with my 28 trousers. Is there any provision for uniform allowances for members of the Reserve?

Max J. Trinowski  
Hammond, Ind.

• *Uniformed allowances are not available for USAF Reserve officers. Members of the enlisted Reserve will be furnished uniforms when called to active duty.*

*Gentlemen:* Just what outfit, if any, is accepting ex-AAF Liaison Pilots? I have inquired at both ANG and the Air Reserve and no one seems to know much about it. I would like to join one or the other if possible.

R. F. Stretton  
Chicago, Ill.

• *The Army Ground Force is the only branch which has a training program for former Liaison Pilots.*

*Gentlemen:* At the end of the war when the cadet program was halted, I had completed pre-flight at Maxwell Field and left there to be discharged on points before the status of the cadets in training was established. We were to be flight engineers on B-29s if the program had been completed. On discharge I joined the Air Force Reserve but have not been on any active duty since I have continued my college work and will take a B.Sc. this summer. Now, what are the chances of getting into the regular Air Force as a flight engineer trainee, or getting training in this position in the Reserve? At present are any flight engineers being trained, and if so where?

Stewart Taylor  
Austin, Texas

• *Flight engineer positions presently exist in the Air Force in Very Heavy Bomb Units only. Other than on the*

*job, there is no known training program for this type of personnel. You are eligible to apply for a direct commission in the USAF provided you are under 28 years old. You should contact your nearest Air Force Reserve Training Center for assistance.*

*Gentlemen:* I would like information on how to transfer to the Air Force Reserve. During and before World War II, I served 52 months in the Ordnance Department assigned to the Air Force. A few months before separation I transferred from the Ordnance Department to the Air Corps but upon separation was transferred to Ordnance Reserve. I will appreciate information as to the probability of my making this transfer and as to the proper channels through which to make my request.

Leon M. McCorkle  
Upper Sandusky, Ohio

• *Transfer to the Air Force Reserve may be effected under the provisions of paragraph 36, Cir. 356, WD 1946. Letter should be submitted through your State Senior Officer Reserve Instructor.*

*Gentlemen:* I am a former Air Force sergeant and am eligible for a commission in the Air Force Reserve. However, I am at present drawing disability compensation. Can I receive a Reserve commission without giving up the disability compensation while on inactive status?

Jack S. Fuchs  
Brooklyn, N. Y.

• *You will not have to waive your disability compensation while on inactive status. However, in accordance with WD Cir 101, 4 April 1946, a report of your physical examination must accompany the application for commission in the Air Force Reserve.*

*Gentlemen:* In your November issue you state that anyone who participates in one of the Air Force extension courses is considered active. Does this in any way qualify the Reservist to draw pay for training, or isn't that considered training? If it is, where should I apply for training pay? I have been participating in the program since May and would like to have this information.

Charles E. Biller  
Chicago, Ill.

• *Members of TO&E units and those individuals on mobilization assignments will receive inactive duty pay. Further information on training pay eligibility, requirements, and administrative procedures are outlined in AF Reg 45-10.*





# WHAT IT TAKES

Maybe the bomber boys in China didn't have a monopoly on guts, but they had their share

**T**he bomber boys in China have no monopoly on these qualities; you can find them just as readily in the icy altitudes over Germany or above the Pacific. But it is with the bomber boys of China that I have flown and lived, and they are the ones I know best.

Take Lt. Bob Pettingell of Washington, D.C., for example. He has 56 combat missions under his belt, without a scratch. Off Hainan Island in the spring of 1944 he demonstrated one of the reasons why. Pettingell and his wing man had flown through the South China night to reach Hainan Island just at dawn. Their target was shipping off the great ore-loading ports. The two B-25s were buzzing along just above the water, with the rocky bulk of Hainan Island silhouetted by the rising sun, when they were jumped by a patrol of ten Tojos. There was no room for the Mitchells to maneuver—the stubby, black fighters were above and the water was below. Two of the Japs peeled off on Pettingell's plane in a well-coordinated attack. One came in high from the side in a beam attack. The other made a pass from just a little to the left of the nose, just out of the line of fire from the Mitchell's fixed guns. These tactics were designed to split the defensive firepower and make the B-25 easy meat.

Pettingell diagnosed the tactics in less time than it takes to tell about it. Calling to his turret gunner to take the beam attacker, he racked his Mitchell around like a fighter and went into a curve of pursuit against the Jap coming

in from ahead. He punched his trigger button on the wheel and slugs from six .50s lashed across the Jap's flight path. Pettingell flattened out his bank, and incendiaries showered around the Tojo like sparks off flint and steel. The fighter trailed black smoke and then blew up in a swirling puff of orange flame. At the same time the top-turret gunner was chewing into the beam attacker with his twin .50s. While Pettingell was shouting, "I got him!" over the interphone, the other gunners were watching the second Jap fall off smoking and crash into the sea. The rest of the patrol decided they had seen enough and went home.

A combat crew that isn't eager is hardly worth the gas it burns on the half-hearted missions it is bound to perform. To be eager when you are fresh from the States is relatively easy, but it takes something extra after you have seen a few slugs ventilate the Plexiglas and watched a few flamers hit the deck and explode.

Capt. Ronald Shirlaw was a real eager beaver. He came from What Cheer, Iowa, and everybody kidded him about that. Nobody kidded him about his 400-odd combat hours, or the time he fought his way for 15 minutes through Zeros and flak to dump his frag bombs on Kiungshan airdrome.

Shirlaw was leading the second of two flights scheduled to attack the airdrome at low level. Approaching the target, he saw Jap fighters attacking the first flight and more coming up off

the field. He had plenty of time to turn and outdistance the fighters. Instead, he called his formation to tighten up and plowed on to the target. The B-25s fought their way in and found plenty of Jap aircraft still on the ground to absorb their frags. There wasn't a plane in his flight that wasn't riddled by fighter fire and flak, but they all got home after wrecking more than a dozen Jap bombers and fighters on the field.

You have to talk to his navigator-bombardier to get the details of the week when Shirlaw was shot down on the first mission, wounded on the second, and then flew two more before the end of the week. On his first mission, Jap fighters intercepted the pair of Mitchells while they were skip-bombing the ore docks at Bakli Bay. His wing man broke off and headed for home. Shirlaw bored in to drop his bombs and then went after a flak position that had bothered his squadrons for weeks, pumping 75-mm. shells from his cannon into the gun pits. Slugs from a fighter punched holes in his wing tanks and he barely made it back to friendly territory for a crash landing.

He was back on the combat schedule the next day and led a flight on a sea sweep around Hainan Island. He sighted two freighters, convoyed by a gunboat. Calling on his wing men to hit the freighters, Shirlaw went after the flak-stacked gunboat. On the first run at mast height a 20-mm. shell exploded in the cockpit, tearing his scalp with fragments. Shirlaw was momen-





## By Maj. Robert B. Holtz

tarily knocked out. He couldn't toggle his bombs and came to just in time to avoid flying into the gunboat. Blood blurred his vision as he pulled away, but he could see the gunboat wheel to protect the freighters.

"Are we going home?" asked the navigator.

"Hell, no, I'm going to get that bastard," Shirlaw replied.

He made his second run, pumping cannon shells and spraying slugs from his forward-firing .50s as he closed the range. Two 500-pound bombs bounced across the water at the gunboat. One exploded underneath the ship and the other tore a hole in its side. When he left, the gunboat was burning and sinking.

Back at the base Shirlaw persuaded the flight surgeon to rig up an inconspicuous bandage. With the bandage concealed by his battered flight cap, Shirlaw bearded the operations officer to get on the next day's schedule. He would still be flying if the group commander hadn't come across his record and ordered him home.

When your skin is at stake it pays to try anything once. When the cannon-carrying B-25s arrived in China there was a lot of barroom engineering as to whether they would fly on one engine. The slide-rule boys figured that the extra guns and ammunition in the new model made it too heavy for single-engine performance. Nobody was anxious to give them a practical demonstration that they were wrong.

Lt. Ken Martindale of Syracuse,

N. Y., was a trouble shooter on New York State power lines before he joined the Army Air Forces. But he had never found as much trouble in upper New York as he did one summer afternoon on the upper Yangtze River. As pilot of a cannon-carrying Mitchell, he attacked a 300-foot transport deep in enemy territory. He made one run, putting cannon shells and a 500-pound bomb into the transport. As he made his second run to finish it off, he suddenly caught a burst of flak that knocked out the fuel and oil lines in one engine. He had to feather the prop in a flash to prevent the engine from burning up. With less than a hundred feet between him and the Yangtze, Martindale began a practical demonstration of single-engine performance with the heavy plane.

To complicate his problem he suddenly picked up an escort of eager Oscars. The Jap fighters had dived on the five Mustangs that were escorting Martindale and a merry fight ensued. The Mustang shot them down. The other two Oscars withdrew. The Mustang pilot called to Martindale: "Head for the clouds. I'll cover your engine."

The silvery gray cloud bank was 1500 feet above the altitude where Martindale was nursing his crippled Mitchell. There was also a 4500-foot mountain range to hurdle on course to the nearest American base. Flying on one engine was one thing; climbing 5000 feet was something else. Martindale called to the crew to heave out everything they could to lighten the plane. Out went the machine guns, ammunition, radios, life raft, and everything loose in the fuselage. Martindale began to ease his plane upward. The air speed fluttered down, the heavy ship began to stagger and shake, but Martindale kept coaxing it up. He got into the clouds, and the Mustang headed for home. The crew called to Martindale and offered to bail out to lighten the load further even though they were still over enemy territory. Martindale told them to buckle on their chutes and stand by.

The minutes dragged as the tedious race between the altimeter and the clock was run. For three and a half hours Martindale fought, nursed, and cursed the weary Mitchell up, up, until the altimeter swung around to 5000 feet. He held his leaden-winged bomber at that altitude over the ridge and then let down through the overcast to make a perfect landing at his base.

It is always hard to play on a losing team, but when your life is at stake it takes something more than guts to play a lost game to the finish. There were two of the bomber boys who played what looked like a losing game to the end. One lost, the other finally triumphed but neither let down for an instant when the going was at its worst.

Lt. Robert Rymer, a bombardier from Asheville, N. C., had seen his share of flak and flame-winged fighters from the nose of a Mitchell. As his bomber swept in at treetop height to-

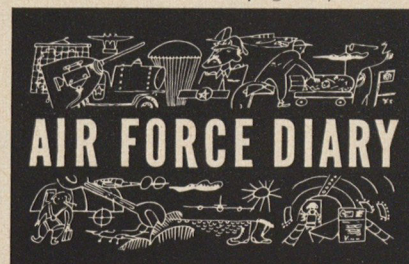
ward a big Jap airdrome on Hainan Island, he could see enemy planes in the revetments and others taxiing to take off. Flak was blazing from guns all around the field. His plane was hit in the left wing and engine. Flames licked around the cowlings.

Rymer had a chance to get out if he jumped immediately. He knew what the odds were, but he stuck with his plane. He dropped his frag bombs and took up his flexible nose guns to strafe. Men in nearby planes saw his bombs explode among parked planes on the field. A flight of Jap fighters headed toward the flaming bomber, eager to get a share in the kill. Pilot and co-pilot of the wing plane saw incendiaries streak from Rymer's gun as the enemy fighters attacked in a head-on pass. Flames swept along the Mitchell's fuselage and cockpit as it headed out to sea. Rymer got a Jap fighter with a burst in the engine. His squadron mates saw the Jap hit the sea and explode just before the B-25 plunged into the water. Out of the mass of flames as the Mitchell went down they could still see the glowing tracers spraying from Rymer's gun.

Fate dealt Lt. Jesse Weber of Bradford, Pa., what looked like a losing hand over Indo China. His B-25 was plastered with explosive and armor-piercing shells while bombing a railroad bridge over the Red River. Weber was hit at the start of his bomb run and knocked unconscious by an explosive shell that tore up the cockpit and inflicted severe head wounds. Yet he completed his bomb run, dropped his bombs, closed the bomb-bay doors, and turned off the target, all by sheer guts and instinctive reaction to long and thorough training. One of the gunners managed to fly the plane while the navigator patched up Weber.

The Mitchell ran into severe turbulence and zero visibility. Some of the instruments had been shot away and others that were damaged began to malfunction, making it impossible for the gunner to continue flying. Bloody and torn, Weber climbed back into the cockpit and began his fight to bring his plane and crew home. The weather was getting worse. The top of the cockpit was shot away, and the icy blasts at 14,000 feet roared through the compartment. Weber was severely wounded in his back, neck, right arm and leg, in addition to his head injuries. With only one arm and leg serviceable and only his basic flight instruments left, he fought the crippled plane through the darkening clouds. The oxygen supply gave out. Then the plane plunged into a thunderstorm.

(Continued on page 46)







## AFA News Briefs



Philadelphia got its AFA charter in mid-November. Participating in ceremonies were (from left) Robt. L. Mooney, Vice Cmdr.; Wendell Stewart, ex-Director of the Penna. Wing; E. P. Campbell, Cmdr.; Maj. Gen. E. A. O'Donnell, Jr., C.G. 15th AF; George Van Nostrand, Hq. AFA; Brig. Gen. Emil Moulthan, 1st AF.

## The PHILADELPHIA Story.

**S**oon after the formation of the Air Force Association, national headquarters set its heart on having a large active Squadron in the nation's third largest city, Philadelphia. But headquarters soon found out that the Quaker City was not one to rush into a job un-

til it could be done first rate.

When AFA representatives began surveying prospective organizers for the Philadelphia Squadron, acquaintance was made with Wendell B. Stewart and E. Perry Campbell, both attorneys, who expressed their interest in a local AFA

unit, and offered their assistance.

It was not long after Stewart and Campbell took over the job of organizing the local unit that Headquarters received a request for approval of the charter application of the Metropolitan Philadelphia Squadron. Actually the Squadron was in business before its charter was approved, for its celebration of the observance of Air Force Day rated close to the top celebrations staged throughout the country.

The organizational meeting of the Squadron was held on October 21st, at which time Campbell was elected to head the outfit. Other officers elected to assist Campbell are: Robert L. Mooney, vice-commander; Morrie D. Skarupsky, 2nd vice-commander; Isadore Brodsky, secretary; Everett L. Miller, treasurer; Elizabeth Mackenzie, historian; and David R. Odenath, C. Clarence Carn, Richard P. Hart, Paul Denckla and Samuel N. Busch as councilmen.

The week the Squadron received its approved charter from AFA headquarters it was busily engaged in the sponsorship of a week-long Air Force exhibition in the city's Raeborn Plaza. The Squadron was not willing to settle for just an ordinary charter presentation; its members arranged for a special ceremony on the stage of one of the leading theaters. Right in the middle of the premiere program of Hollywood's latest aerial movie, officers of the Squadron were presented their charter, while over two hundred AFA members in the audience stood up to exhibit their representation in the Quaker City.

The long wait for the formation of the Philadelphia Squadron was worth it. All those desiring to get in touch with the Squadron may contact Campbell at 1616 Walnut Street.

Feature of Armistice week in Philadelphia was USAF exhibit sponsored by new AFA Squadron. Attendance was 65,000 a day.





## CALIFORNIA

**Los Angeles:** The Los Angeles Squadron No. 1 meets regularly the fourth Wednesday of each month in the library of Patriotic Hall at 1816 South Figueroa in Los Angeles at 8 p.m., according to Rae Gersco, secretary of the Squadron. Miss Gersco urges all AFA members in that area who are interested in participating in the Squadron activities to contact her at Box 2575 Terminal Annex, Los Angeles 54.

**Santa Monica:** Bert D. Lynn, secretary of the California Wing, has announced the election of new officers for the Santa Monica Squadron. William E. Tobias of 175 Pier Avenue, Ocean Park, was elected to head the Squadron. Other officers elected are: L. C. Riley, deputy-commander; Hal Engfer, vice-commander; Jane Hallisey, secretary; James C. Ellis, treasurer; and Joseph J. Nadel, chairman of the California executive committee.

**San Francisco:** Thomas F. Stack, 554 Flood Building in San Francisco, has announced the launching of an extensive AFA membership campaign and Squadron organizational drive by the California Wing, which promises to be one of the largest planned membership efforts ever undertaken by any Wing to date. Secretary of the Wing, Bert D. Lynn of 1452 North Seward Street in Los Angeles, is handling the details of the campaign.

At the second annual election of the San Francisco Squadron, Mike Kavanaugh, a pilot over the hump during the war, was chosen to succeed Tom Stack as commander of the Squadron. The other new officers of the Squadron are: Sam McKee, Jr., vice-commander; Milt Coburn, secretary; Len Levine, treasurer; Hal Christensen, sergeant-at-arms; and Gene Bradley, Cliff Griffin, Mike Pisani, Don Prator and Tom Wade as councilmen. The Squadron's headquarters is in the Flood Building. Contact should be made with Milt Coburn at 2510 Van Ness Avenue in San Francisco.

## DISTRICT OF COLUMBIA

**Washington:** The Washington premiere of the Warner Brothers' film "Fighter Squadron" was the scene of the presentation of the charter to the D. C. Wing by C. R. Smith, newly elected President of the Association. Under the organizational direction of Maynard H. Smith, holder of the Congressional Medal of Honor awarded him during the recent war, the D. C. Wing was formed, and the temporary officers elected. George D. Hardy was elected to head the Wing temporarily until the formation of the five D. C. Squadrons now planned is completed, and the Squadrons elect permanent Wing officers. Others temporarily elected are: Francis E. Draley and Ernest J. LeBlanc, vice-commanders, and Milton L. Gould, 3507 Minnesota Avenue, secretary. Smith, realizing the importance of membership, accepted the membership committee, and stated that an all-out effort would be made to make member-

ship available to everyone eligible in D. C. The Wing officers have tentatively divided the Washington metropolitan area into five separate Squadrons to facilitate traveling to Squadron meetings. Organizational officers are being selected to get these five Squadrons underway.

## FLORIDA

**Fort Pierce:** AFA headquarters recently approved the application for charter of the Fort Pierce Squadron. Marion A. Ramsey was elected to head the new unit, and the other officers are: Albert O. Patrick, vice-commander; Edmond J. Clemenzi, secretary; David B. Putnam, treasurer; and Robert A. Swisher, Haynesworth K. Clark and Philip O. Hurst as members of the council. Those in the Fort Pierce area interested in contacting the local Squadron may do so by writing Ramsey at Box 716, Fort Pierce.

## KANSAS

**Wichita:** A group of AFA members in Wichita, headed by B. G. Rowe, 2970 South Pershing, Planeview Station, are busy forming an AFA Squadron there. The group recently held the first organizational meeting in the Wichita University ROTC armory. All Wichita AFA members are urged to contact Rowe, or Perry V. Row of 2968 South Pershing, Planeview Station, who is serving as temporary secretary of the unit.

## MARYLAND

**Baltimore:** At a recent election of the Baltimore Squadron, James Blackhurst, who served as Executive Officer of the 417 Bomb Group of the 5th Air Force during the war, was chosen to head the Squadron for the coming year. Other officers elected to assist Blackhurst are: Warren Bryant, vice-commander; John Warner, recording secretary; Douglas Smith, corresponding secretary; and N. Herbert Long, treasurer. H. Riall Jackson, retiring Squadron commander, states the new officers have many plans for future activities of the local outfit.

## NEW JERSEY

**Montclair:** The Montclair Squadron, which recently voted to change its name to Montclair-Essex Squadron, so as to afford AFA members in Essex an opportunity to participate in Squadron activities until a Squadron is formed there, has announced publication of a Squadron quarterly, called the Air Men's Letter. The Squadron is also making plans to print a monthly news letter, containing up-to-date news on Air Reserve activities. Richard Noyes, commander of the Squadron, was recently elected chairman of the New York City AFA divisional meetings, which consist of representatives from the New York City Squadrons and nearby New Jersey units.

**Paterson:** The Passaic-Bergen Squadron recently met in the McKiernan Art Center in Paterson and elected and installed new officers for the unit. John Currie was elected to head the Squadron and the other officers are: Robert Westervelt, vice-commander; James Pasquarello, secretary; Arthur Cousemaker, treasurer; and Roger Dixon, Charles Roper and Leo Sweeney as councilmen.

**Newark:** Irving B. Zeichner, newly elected Wing commander of New Jersey, has announced that there will be a statewide AFA rally and luncheon at the Downtown Club in the National Newark Building at 1 p.m. on January 29th. C. R. Smith, President of the Association has been invited to attend the luncheon. All AFA members in New Jersey who are interested in participating in the rally and luncheon are urged to contact Bernard H. Lowy, Luncheon Chairman, at Military Park Building, 60 Park Place, Newark.

## NEW YORK

**Binghamton:** Officers of the New York Wing, which is headed by Earle P. Ribero of Delmar, recently held a policy meeting in Binghamton. Officers of several AFA Squadrons throughout the State also attended the meeting, which was called to formulate membership and Squadron formation plans for the coming year. Plans were also made to divide the state into areas, to be called Groups. This move was made so that the many Squadrons over the State would have Wing representation and organizational assistance nearby, thereby relieving the Wing Commander of the difficult task of having the entire State to cover.

**New York City:** The Manhattan Squadron, headed by Robert S. Johnson, one of the top fighter aces of the recent war, has made plans for a series of interesting talks by famous aviation figures for its meetings, which are held in the Wings Club at the Biltmore Hotel. At the last meeting of the Squadron Colonel Ernst Englander, interrogator of POW's in combat areas during the recent war, spoke to the members attending.

Dick Tregaskis, war correspondent and author of "Guadalcanal Diary," will be the guest speaker at the Squadron's next meeting, set for January 6th in the Wing's Club.

An informal luncheon for the Squadron is planned for January 20th at the Produce Exchange Luncheon Club. Those desiring to make reservations are requested to contact Bill Lindenmuth at 40 Wall Street in New York City.

**Mitchel Air Force Base:** The Air Force Association was recently honored by the formation of a Chaplain unit of the Association. An organizational group of Chaplain AFA members, headed by

# State Roundup





## ROUNDUP CONTINUED

Chaplains Augustus Gearhard, Charles W. Newman and Laurence R. Boyall, met and elected Chaplain R. M. Terry to head the newly formed AFA unit.

During the first annual AFA convention, held in Columbus, Ohio in September of 1947, and the second annual convention, recently held in New York City, many former and present Air Force Chaplains attended and held their own reunions. Their interest in AFA during these events, and their enjoyment of their reunion with fellow Chaplains, prompted the formation of the Chaplain unit within the Association. Chaplain Terry urges all persons interested in becoming affiliated with the Chaplain unit to contact him at the Jesse Lee Academy, West Redding, Connecticut.

**Queens:** At a meeting of the Queens Squadron, held at the Hillcrest Golf Club in Jamaica, on November 4th, David Levison of 216 Forbell Street, Brooklyn, was elected commander. Other officers elected are: William Dwyer, vice-commander; Gustav Diechmann, secretary and Raymond M. Hook, treasurer. Eligible AFA members of the Queens area are urged to get in touch with Diechmann, 110-34 Jewel Avenue, Forest Hills.

### WEST VIRGINIA

**Beckley:** The Beckley Squadron, now headed by John H. Davis, is still going ahead at full speed in keeping the people in that area air-minded. A few weeks before Air Force Day, the Squadron sponsored an air show at the local airport (having a dirt runway 3200 feet long), and though the population of the entire City of Beckley is only



Washington D. C. got its AFA wing charter in November. Presentation was made by AFA's president C. R. Smith, second from right, to George Hardy, temporary wing commander. Participating were General Y. H. Taylor, left, C.G. of Fourth Fighter Wing, and Capt. Vermont Garrison, Gunnery officer of Fourth Fighter Gp.

17,000, a crowd of over 60,000 persons was on hand to witness what everyone present termed "the greatest air show ever held in the State." Members of the Squadron, as well as city and state officials, were anticipating a crowd of 5,000 persons, and plans for handling that many were made. Consequently, the worst traffic jam in the State's history occurred. The 15,000 automobiles bringing the patrons to the show blocked the traffic for over twenty miles. Though the show ended before five p.m., cars were still trying to make their way home from the airport at

8:30. Major Howard Hively and Capt. Vermont Garrison, US Air Force pilots, who flew over the Beckley air show on their way to their home base in Washington, D. C., stated they had never seen so many people and so many automobiles in so many "hollars" in all their flying days. The congested gathering presented the AFA Squadron with a major problem in collecting ticket admissions. With more than twelve times as many persons present as anticipated, the Squadron members finally disbanded the idea of collecting admis-

(Continued on page 43)

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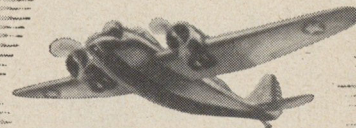
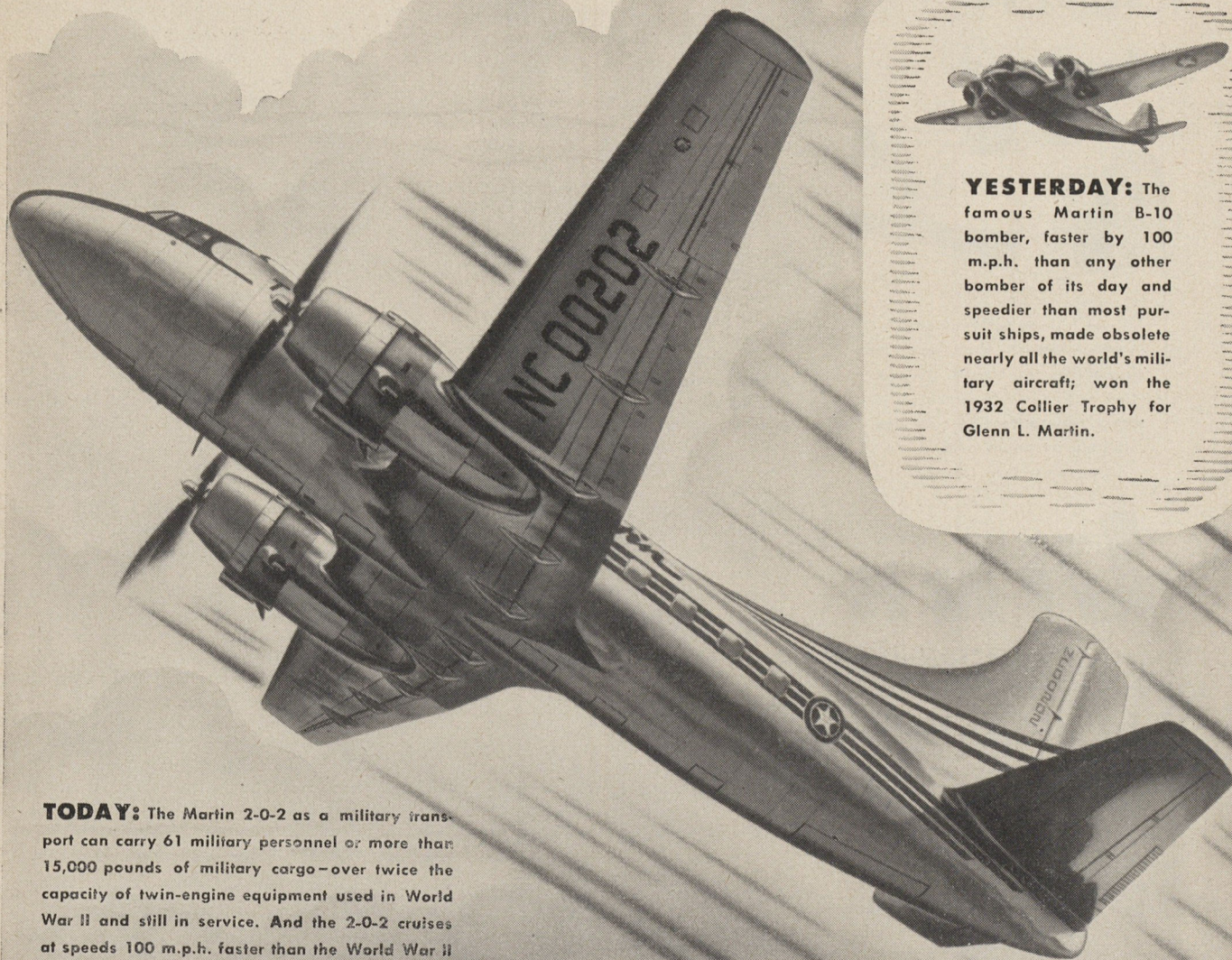
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**TODAY:** The Martin 2-O-2 as a military transport can carry 61 military personnel or more than 15,000 pounds of military cargo—over twice the capacity of twin-engine equipment used in World War II and still in service. And the 2-O-2 cruises at speeds 100 m.p.h. faster than the World War II planes it replaces . . . yet operates from the same short runways, small airports.

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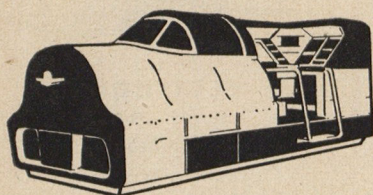
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## GIANT OF THE WEST INDIES CONTINUED

ron followed the operational pattern of prior seasons, flying three daily synoptic tracks in fan-like fashion from the base in Bermuda, along the coast due north, northeast and east. Once a disturbance was spotted the operation was altered to fit the position and speed of movement of the storm. As before, the method used last year was to penetrate the eye in order to chart the hurricane's behavior. Although this type of reconnaissance became routine, it was a highly treacherous and hazardous operation, subjecting the crew and aircraft to terrific buffeting and vibration.

A perfected use of radar and other equipment, together with the use of a system of mathematical calculations from positions along the storm's outer edge, has now made it unnecessary to fly into the eye to fix the position and movement. Beginning with the first Atlantic hurricane of the present season, which was discovered on August 25, near Puerto Rico, the hurricane planes follow a pattern of circumnavigation within the storm area, tracing those points, radiating from the eye, from which hurricane force winds (75 mph) are measured. Through readings taken from four points of right angle turns, it is possible to calculate by the simple drawing of lines the exact position of the center. The reconnaissance aircraft on this type of mission operates at low level, 1500 feet or below, for the purpose of maintaining accurate dead reckoning, using the most exact drift measurement (visual) possible. The aircraft penetrates the hurricane at right angle to the wind (the wind is always blowing from the left). The wind velocity increases steadily as the center is approached. When winds of 75 miles per hour are reached, the aircraft turns down-wind or to the right with the wind until a specified significant pressure rise and reduction in wind speed is observed, indicating that the center of the storm has been passed and lies to the left and behind the aircraft. At this point a 90° turn to the left is made and the center of the storm is again passed on the right. Wind velocity and barometric pressure are recorded along this course and the point of minimum barometric pressure and maximum wind velocity is determined. This process is repeated through 3 additional 90° turns to the left, until the point of original entry is reached, thus "boxing in" the eye of the hurricane. Lines are drawn perpendicular to the course of the aircraft from the points of lowest barometric pressure and highest wind velocity. The point where these lines intersect is the center of the eye of the hurricane. The eye can also be located and its movement plotted by extending lines perpendicular to winds of hurricane velocity from any point along the course of the aircraft within the storm.

How does aerial reconnaissance accomplish its military assignment and its public service? In the course of tracking a hurricane, a series of radio

reports are made to the Joint Air Force-Navy-Weather Bureau Hurricane Warning Center located at Miami, Fla. The three major national weather agencies—Air Weather Service, Navy Aerological Service, and the US Weather Bureau—have pooled their facilities at Miami to provide a warning service to the military and to the public on the approach of impending danger. As many as 20 to 30 reports are radioed to Miami in the course of a flight en route to, into, and around the storm, giving all essential data.

Advisories are issued for military agencies by both Air Force and Navy weather offices, while the Weather Bureau is charged with issuing warnings to the public generally.

While hurricane activity was slow in getting underway this season, the storms came with unusual rapidity since the last week in August. Storm V, which was discovered September 18 was the season's worst, causing extreme damage as it swept over the citrus belt along Florida's central coastline.

In tracking these storms the "Hurricane Hunters" of the 373rd Reconnaissance Squadron flew approximately 50 missions, or an average of about 2 flights during each day's activity. In the course of each flight they made an average of about 12 reports to the Joint Hurricane Warning Center in Miami on the storm's location and characteristics. Five hundred and ninety-three reports were made in all.

The timely warnings to the military and the public, based on these and the reports from other sources, have been credited with saving many lives and preventing a far greater toll in damage to property. With this ample warning it was possible to "weather down" homes and other stationary structures, or remove objects that could be transported away from the danger zone. A revealing example of what this service means to the public in the saving of life may be found in a comparison of the two major hurricanes of 1900 and 1947. Although the 1900 storm was classified as of moderate intensity, and the 1947 storm as severe, the loss of lives in 1947 was less than 2% of the loss in 1900. In the severe Atlantic hurricane of September 1945, while causing property damage amounting to some \$50,000,000, there was a loss of 2 human lives. This is a marked contrast to the 600 lives lost in the 1938 hurricane which struck Long Island and southern New England, causing property damage of \$300,000,000.

Science has evolved no practical or proven way to combat such elements of nature, but through means of science, everything possible is being done to mitigate the destructive consequences of this force that moves with such erratic but definite certainty out of the tropical waters. The services that are jointly attacking this problem—the Air Force, the Navy, and the Weather Bureau—have reason for just pride in the results of their labors.



sions, in spite of the fact they had invested well over \$2,000 in the program. Though advertising sales, concessions and other activities afforded the Squadron to just about break even, it was not the financial success the members had hoped for. In view of all this, the Squadron is very pleased with the outcome of the show, for it gave the local AFA outfit a record-breaking name, and certainly spread the air power message to thousands of persons in that locality.

Just a few weeks after this big event, the Squadron staged its Air Force Day celebration, and emerged with a shiny new Monocoupe airplane all clear, belonging to the Squadron. The members are now debating whether to keep the plane for use by the Squadron, or to sell it to swell the Squadron treasury for use on future projects.

The Air Scout Squadron in Beckley, which the local AFA outfit is sponsoring, reports quite a successful record itself since its formation of just a year ago. Its nine members staged a Thanksgiving dinner-dance, with their parents and leading city officials invited, and reports a balance in its treasury of \$159.00, even after it had contributed to the Red Cross and Community Chest drives. The young Air Scout group, headed by Fred Bales, has participated in many local activities, and has accumulated its treasury on its own.

AFA headquarters has just recently received a proposed constitution and by-laws for the Ladies Auxiliary of the Beckley Squadron, which was formed early this year. The constitution and by-laws was accompanied by a resolution from the secretary of the Beckley AFA Squadron, William P. Hall, Jr., for presentation to the next annual AFA convention to authorize official formation of a national Ladies Auxiliary of the Air Force Association.

#### WISCONSIN

**Milwaukee:** L. A. Larson, Wisconsin Wing Commander, recently dropped in at AFA headquarters in Washington to extend the invitation of the Wisconsin Wing and the Billy Mitchell Squadron to the Association to hold its 1949 annual convention in Milwaukee. Larson stated that the things for which Milwaukee is so famous will be doubly prevalent during an AFA convention there.

Larson also announced an organized movement on in Wisconsin for the formation of AFA Squadrons in the following cities: Appleton, Beloit, La Crosse, Eau Claire, Janesville, Manitowic, Fondulac, Green Bay, Oshkosh, Racine, Sheboygan, Superior, Viosha and Westallis. Activation of Squadrons in the above named cities is to begin in early January. All present and eligible members of AFA living in these areas are urged to watch their local papers for coming meeting announcements. Those desiring earlier details may contact Larson at Box 444, Elm Grove, Wisconsin; telephone Sunset 2-8567, a Milwaukee exchange.

# Return to Active Duty!

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You, too, have this opportunity! You can volunteer now for three or more years of active duty in the highest grade you held prior to relief from wartime active duty... receive valuable training for a new career in the Air Force, in the aviation industry, or in the field of commercial aviation.

### WHO CAN QUALIFY?

Vacancies exist now for officers in all company and field grades, including a limited number of openings for colonels in technical fields. (Sufficient applications for flying positions are now on hand to meet immediate requirements.)

Officers under the age of 45 are encouraged to apply for extended active duty. Officers must be commissioned in the Air Force Reserve or the Air National Guard of the United States. *All officers must have high efficiency ratings.* Former officers who do not now hold commissions may apply for U. S. Air Force Reserve commissions at the same time they volunteer for duty.

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| ★ <b>Intelligence</b> (especially photo-interpreters)              | ★ <b>Chemistry</b>                |
| ★ <b>Inspection—</b> Technical and Administrative                  | ★ <b>Weather</b>                  |
| ★ <b>Air Installation—</b> Civil Engineering                       | ★ <b>Aeronautical Engineering</b> |
| ★ <b>Management—</b> Finance, Accounting, Budgeting and Statistics | ★ <b>Photography</b>              |
|  | ★ <b>Personnel</b>                |
|  | ★ <b>Law</b>                      |

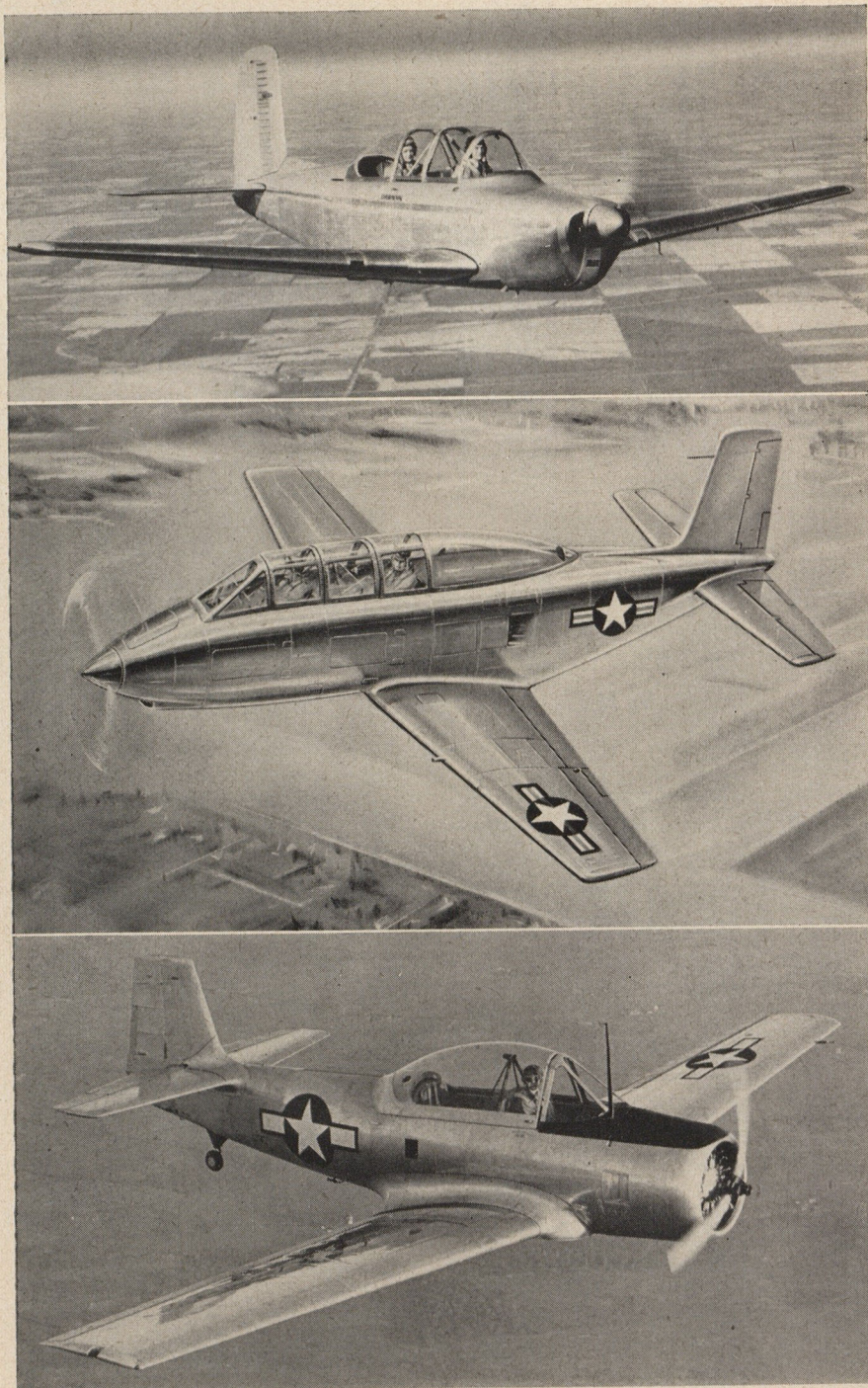
Application Form 125 may be obtained at your nearest Air Force Base, your local Air Reserve Unit, any U. S. Army and U. S. Air Force Recruiting Station, or write: Chief of Staff, United States Air Force, Washington 25, D. C. (Attention: Recall).



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## NEW TRAINERS



**F**or some reason, last month saw the unveiling of more new pilot trainer planes than have been introduced in the past ten years combined. Fairchild, Beech and Douglas all brought out what they thought was the answer to the Air Force problem. Openly however, the Air Force admitted no problem.

So far as it could be learned, no requirement had yet been announced. The builders had made the new planes on speculation only. There was good reason to believe that the AF had begun to reconsider the wisdom of putting all

its training eggs in the North American T-26 basket. For one thing the T-26 was a pretty hot ship and AF officials might well have begun to wonder if they hadn't gone as far as they could in the trend of starting cadets in heavier planes. Also, the Air Force has never liked to concentrate production in any one company. Although no purchases have yet been made, there was a good possibility that one or more of the three planes above—the Beech Mentor (top), the Douglas XT-30 (center) or the Fairchild NQ trainer would be added to the AF string.

# RECON SHOTS

Random camera records of the events of the month in the air from the four corners of the globe

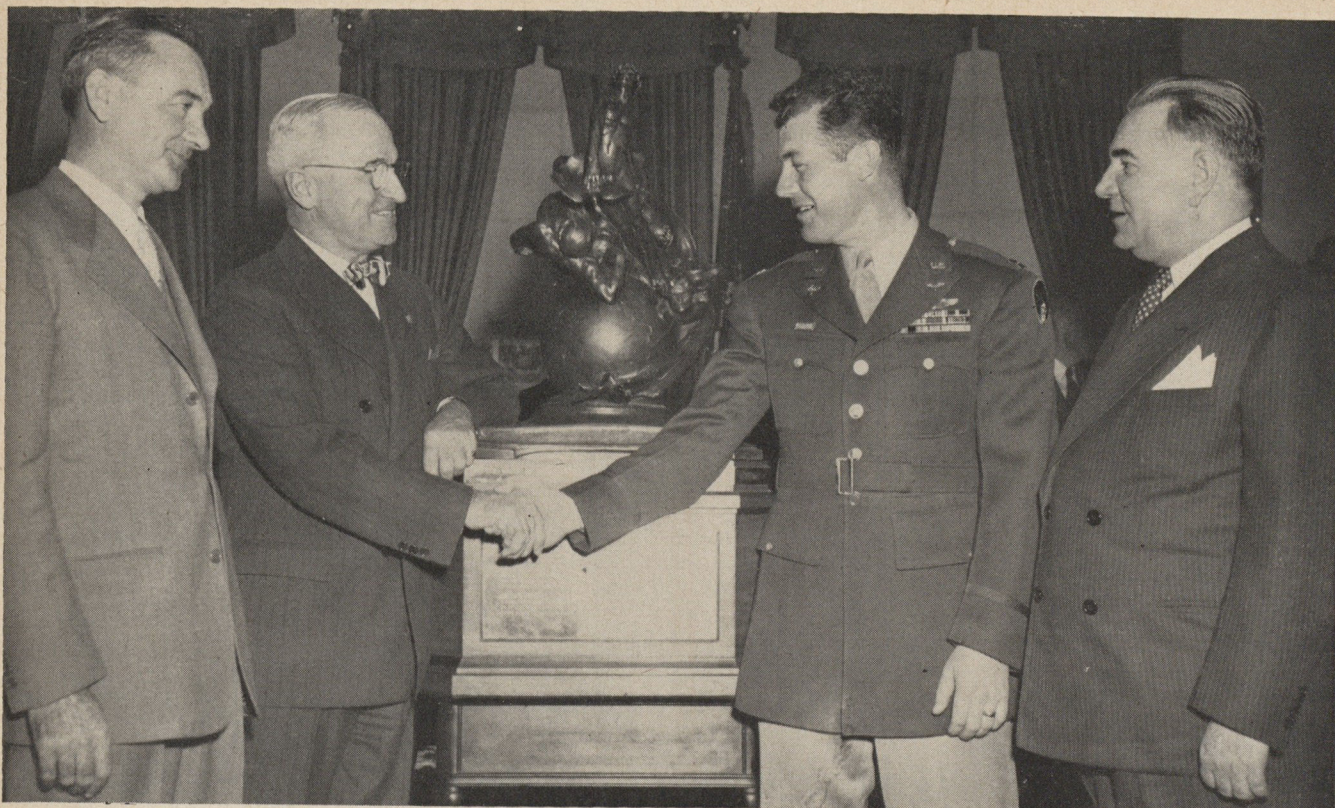


Maj. Gen. Emmett (Rosie) O'Donnell, Jr. of B-29 fame, gets the Legion of Merit from ex-boss General Arnold.

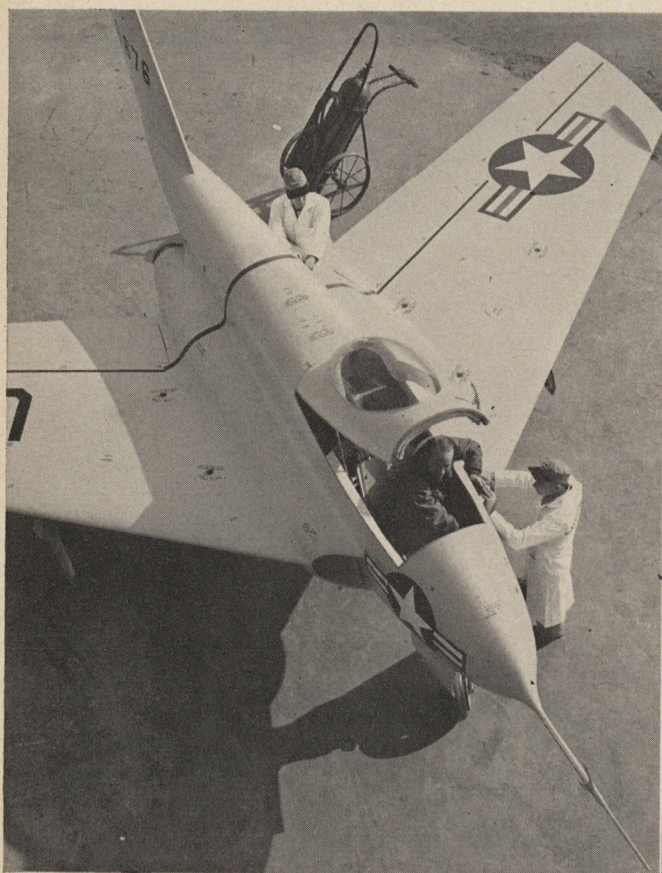


It's Magic! An ex-flying tiger and amateur magician, Maj. Greg Carpenter gives Dinah Shore AFA award.





Faster-than-sound pilot, Captain Charles E. Yeager accepts from President Truman the Collier Trophy for the Air Force. John Stack, NACA scientist (left) and Larry Bell, plane builder, shared award, aviation's highest honor.



"Meteoric Midget," aptly fits this Northrop X-4 airplane, latest of AF's sonic jimmying tools. Wing span, 25 feet; fuselage, 20 feet. It has flying wing control operation.



Seventh Bomb Group's Major C. R. Lamb signs for "3,000 horsepower bonus," first of new high-power B-36's as AMC Procurement rep. Lt. Col. Beverly H. Warren approves.



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## FORGOTTEN JOES CONTINUED

duty status from Guam—with whatever voluntary extensions personnel wish to make. Surprisingly enough, many airmen have elected to stay a year, some longer, declaring Iwo's climate better than Guam's and the morale of its personnel higher.

Okinawa's damage, from Libby, which struck the island twice within 48 hours, has been roughly estimated at \$10,000,000. During the first attack winds reached a velocity of 120 knots before the wind recorders blew away. "What we need here," an airman commented, "is a set of wind recorders which will start operating at the point where all existing ones are blown down." Before calm set in the morning after the blow, hangars had collapsed, several warehouses had caved in, jumbo quonsets ripped apart, a commissary, laundry, bakery and PX had been destroyed and power, communications and water lines had been disrupted. Recovery was remarkably rapid, however, and these services had been restored on Naha, at least, within 24 to 36 hours. Okinawa, by the way, offers tangible proof of the ultimate economy of building concrete typhoon-proof structures. The large two-story concrete barracks, "ty-bases" as they are called, stood up under the typhoon's buffeting with only the loss of an occasional pane of glass.

Okinawa's Kadena (new headquarters of the 13th Air Force), Guam's North Field (19th Bomb Group), and Luzon's Clark Field (until recently 13th Air Force headquarters), all now boast several of these typhoon-proof concrete structures. The quarters are comfortable, attractive and practical, the last word in modern troop housing. Their construction is responsible for a marked upswing in morale. But there are not enough of them and the funds are not available for the building of any more at present.

With limited funds at its disposal, Far East Air Force chiefs have made, it seems, the best compromise between what they would like to do and what they must do. Realizing that the heat was on, this past six months have seen an amazing intensification of effort all down the line—in training, maintenance, and general combat proficiency. Operationally—and right now that is still the major consideration—one could say our air forces in the Far East are in very good shape. Commanders have been tough and they have made what has seemed at times like almost impossible demands of their men; they have driven them day and night; in most places the so-called peacetime working schedule is a myth. And there has been no tolerance for inefficiency. Maj. Gen. Alvan C. Kincaid, who recently took command of the 20th Air Force, is credited with this ultimatum: "If the propellers don't rotate, the personnel will!" And this could be said to be typical of many other island commands where everybody means business.

## WHAT IT TAKES CONTINUED

Icy rain, then hail and snow poured into the cockpit. Weber was suffering intensely from loss of blood, shock, lack of oxygen and cold. The radio compass went out. The buffeting of the storm grew worse and the Mitchell bounced up and down 4000 feet in single swoops. Weber refused to give up. He fought the plane, the storm, and his pain fogged brain and eventually broke out of the clouds near his base, to make a safe landing.

It is one thing to fight your way out a desperate situation into which circumstances have forced you but it is another matter to throw yourself deliberately into such a situation for the sake of somebody else.

Capt. Eugene Pawloski of Donora, Pa., is an excellent example of how this quality crops out in combat. Pawloski had his wing tanks holed during a low-level attack on a freighter. He sank the ship but the gas streaming out through flak holes made it impossible for him to make it back to his base. Gauging his rapidly diminishing fuel supply, Pawloski ordered the crew to bail out just before he estimated the tanks would run dry. One by one, they popped out until only Capt. Robert Guma of New York City, lead bombardier of the squadron, was left. As he was climbing out of his post in the nose, the rip cord of his chute caught on a projection and partially opened the chute. About that time, both engines sputtered and quit.

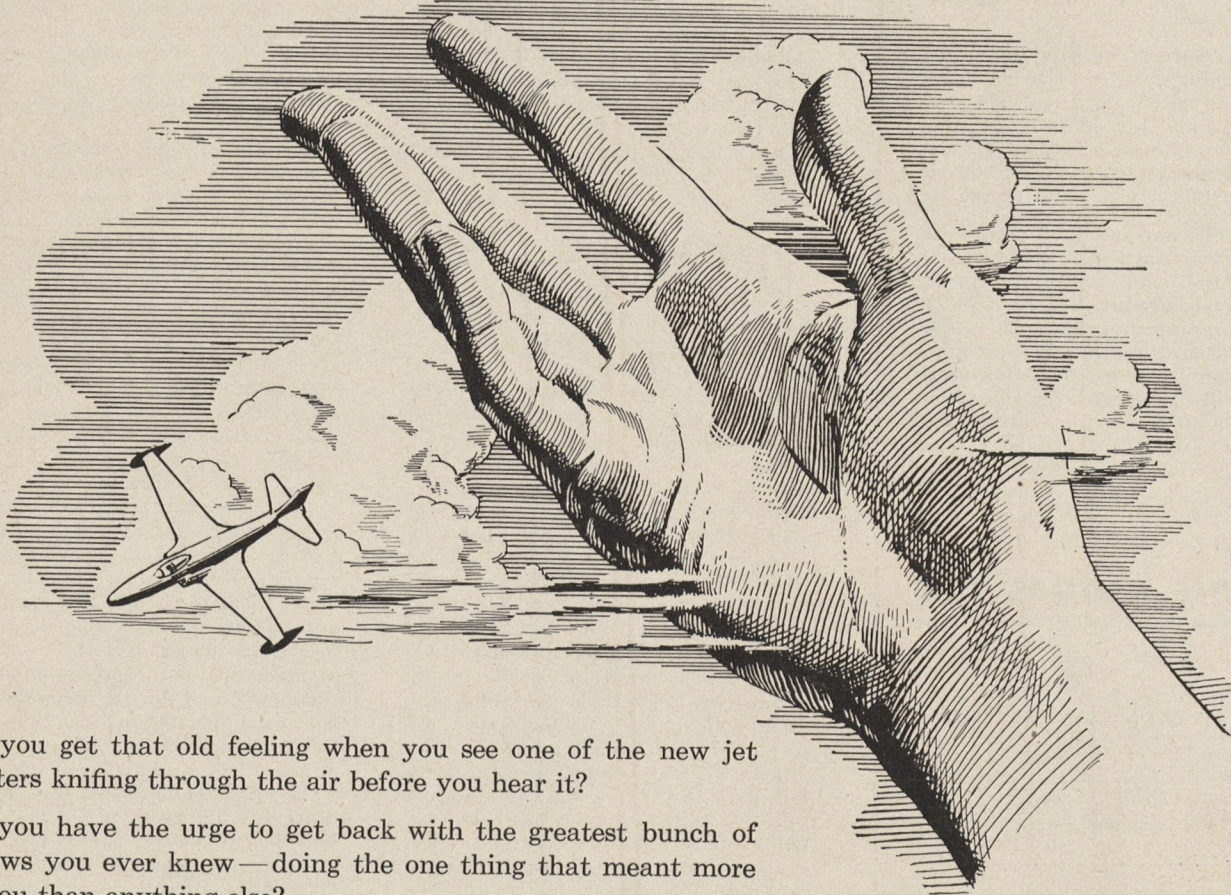
Pawloski had been flying on top of a solid cloud bank. He knew that the territory from the coast to his base was a solid mass of jagged mountains with only an occasional paddy-filled valley. He knew the long odds against finding a valley below him. And he knew that with both engines dead he could make only one pass at a landing. Pawloski could have ordered Guma to jump with his half-opened chute or he could have bailed out himself and left Guma to make his decision. No one would have reproached him. But Pawloski stuck with the ship and headed down through the clouds. Guma came up to the cockpit and they sweated out the descent together. The altimeter needle whirled downward as the air speed indicator picked up. Down and down they went.

Suddenly they broke out of the clouds. The peaks of black mountains were behind them, stretching up into the overcast. Ahead lay a valley marked by the pattern of rice paddies and dotted with small villages. They had missed the mountains by only a few hundred yards. Pawloski set the Mitchell down in a muddy rice paddy with a perfect crash landing and crawled out with only a few cuts and bruises. Guma was uninjured. They walked to the nearest village, hired a ricksha, and rode back to their base.

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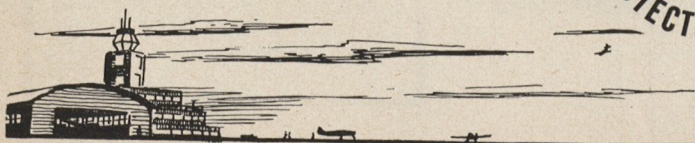
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## ZERO LANDINGS CONTINUED

ing manner: With the plane in a full scale "fly left" position and the compass heading corresponding to the magnetic heading of the runway, a "left wing down" attitude of 300 will zero the vertical pointer.

The "fly left" signal in the conventional cross pointer meter is a displacement error in the position of the plane in respect to the localizer course. The magnitude of the Gyrosyn heading change toward the beam is a measure of the rate at which this displacement error is decreased. This is the first derivative of the displacement error. The magnitude of the angle of bank toward the beam is a measure of the rate at which the compass heading changes, which is also the second derivative of the displacement error. The indication of the Zero Reader is, therefore, based on the formula for the ideal servo-mechanism — displacement plus first derivative plus second derivative. Proper constants were selected as a result of hundreds of hours of experimental flying on ILS ranges under the hood.

To fly the glide path, a full "fly up" signal is neutralized by a nose-up pitch attitude change measured by the vertical gyro. As the "fly up" signal decreases, less and less nose-up signal is required from the gyro to zero the meter. It should be noted that the pitch attitude change is a direct measure of the rate of change of the glide path displacement error, providing the plane is kept at a fairly constant airspeed. This rate is the first derivative of its displacement error. The altitude control is operated in a similar manner. When the desired altitude is reached, the altitude control switch is turned on. A 20-foot altitude error is neutralized by a 1° nose-up signal from the vertical gyro. Two degrees will zero a forty-foot error. By keeping the horizontal bar of the Reader at center, great accuracy can be maintained both in cruising and during turns. A suitable limiter has been provided on the altitude control to prevent excessive pitch attitude changes.

When flying cross country with the

Reader, it is necessary only to set the heading selector manually to the desired course. This will be the heading at which the Reader will be zero-centered. When heading changes are desired and set, the indicator will give the appropriate fly right or left signal, which can be zeroed immediately by banking the airplane to turn in the proper direction. A limiter is provided so that even a large heading change cannot indicate a bank over 30°. Drift angle can easily be observed. If after setting the proper heading, the pointer is at variance with the heading selector when the indicator is zeroed, it means that the airplane is "crabbing" in the direction of the error. This crab can be read in exact degrees. A small angle can be neglected. Larger errors can be corrected by making the course setting coincide with the compass pointer, thus putting the plane "on course."

The Zero Reader appears to be another link in the chain of devices required to make all-weather flying on a commercial scale possible. The currently-used cross pointer system makes the business of ILS approaches increasingly difficult as the plane approaches the ground, due to the increased sensitivity of the beam. There is usually a close-in point where it is impossible to return to the beam should a gust of wind displace the airplane.

The Zero Reader, which combines the localizer and gyro signals, eliminates this, as in its circuit the increased sensitivity is scarcely noticeable. The Zero Reader's circuit theory is new, in that it considers the human pilot a servo-mechanism in an otherwise totally automatic circuit. Its use means that any intelligent pilot can make top-rate instrument approaches with a minimum of indoctrination. More important, the presentation of the signal information is so clear that the practice time on instrument approaches required by all airline pilots is virtually eliminated.

The ease of operation was best indicated by the group of aviation writers who recently went out to try the instrument in Sperry's Douglas DC-3. Of a group of four, two were cub pilots, the other two had no flying time at all. Yet, after only a few minutes of indoctrination they all were able to make reasonably good approaches which, if carried through, would have brought the plane to a successful landing.

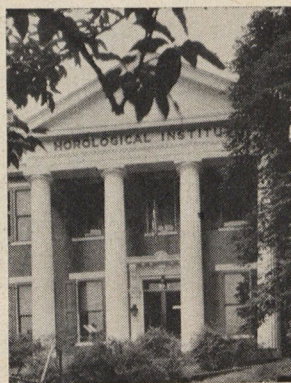
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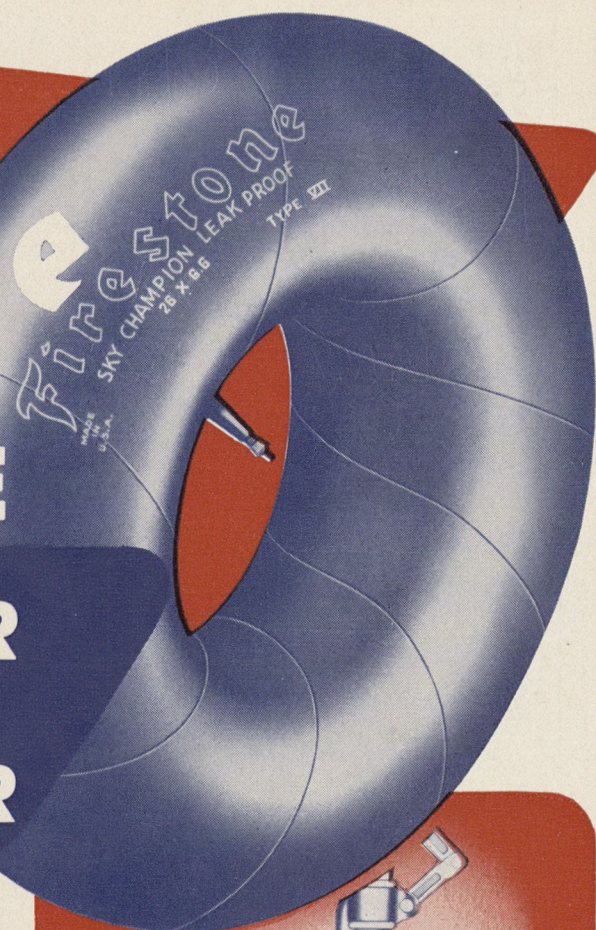
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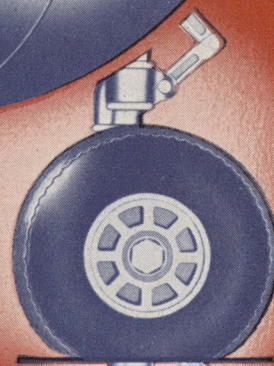
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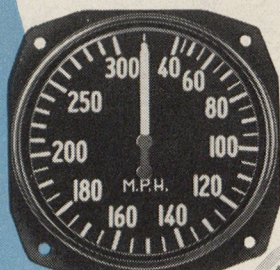


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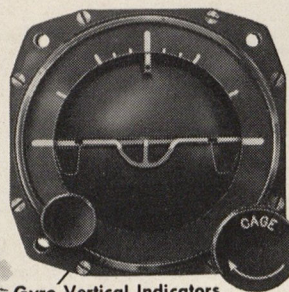




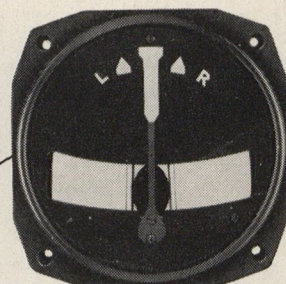
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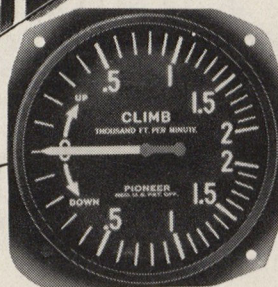
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