AIR FORCE

THE OFFICIAL SERV[illegible] U. S. ARMY AIR FORCES ☆ FEBRUARY 1945

AIRDROME TRAFFIC CONTROLLER—PAGE 26

"Psst! . . . How much would M'sieu le General offer for a litre of hot water?"

"Copilot to pilot—how about a rendezvous at 5 o'clock?"

Highlights of Paris

by CAPT. WM. T. LENT

"It's for my sergeant. She calls it 'Eau de Snafu'!"

"Yeah, but you oughta see the ones on the Calhoun County Light & Power line back home!"

"To hell with your high school French. Stick to the GI guide book!"

Rendezvous

General Pershing's ASN

Dear Editor:

In the November Quiz, on Page 57, you have a question, number 17, regarding ASN No. 1. I would like to know if General John J. Pershing's is preceded by an 0, or if his entire ASN is merely a figure 1.

2nd Lt. Robert S. Petersen,
McAllen, Texas

His serial number is preceded by 0, indicating commissioned rank.—Ed.

The Time of D-Day

Dear Editor:

In the July and August issues of AIR FORCE there are articles on the liberation of France. They gave the starting time of the liberation as 0016, June 6, 1944. We have an argument in our company as to whether this time is official or not. . . .

Thanking you in advance for an answer to this question. . . .

Pfc. James Grubb, APO 667

The exact moment when the liberation of France began is, of course, a slippery thing to define. If you define it as the moment the first Allied soldier set foot on French soil as member of the liberating armies, then the time is just about 0016 as indicated. Our authority for this is the word of Lt. Col. Joel L. Crouch, CO of the first Troop Carrier Group to go in, who told our correspondent in Britain that he dropped his stick of paratroopers at that moment. If they took about one minute to drop the 600 feet or so, the time would have been 0017. There seems to be no official word on the subject; the communiques on D-day say only that the invasion began "early this morning."—Ed.

Minor Matter

Dear Editor:

. . . We've been thinking of writing you for some time, hoping all the time that you would correct the mistake in the color of the 4th AF insignia on the cover. But it has remained so I'm forced to tell you that the circle around the star in our insignia is white, not red.

Just a minor matter, but quite apparent to many of us . . .

S/Sgt. W. M. Carah, Chico, Calif.

Thanks, it's fixed. What sort of score do you make on How Sharp Are You?—Ed.

Recognition, Please

Dear Editor:

We have just finished reading your article in the October issue about the "Flight Nurse," and must compliment the author for writing this very good story. However, we would like to know one thing, and that is, what has happened to the surgical technician who accompanies the "Flight Nurse"? The boys in my outfit who have good reason to be interested, have read and reread the story, and failed to find a single mention of this lowly GI.

(Continued on Next Page)

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AIR FORCE

THE OFFICIAL SERVICE JOURNAL OF THE U. S. ARMY AIR FORCES

DEPARTMENTS

FEATURES

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How Sharp are YOU?

A Photo test of Your Observational Accuracy

Wipe off your bifocals, get this photograph under a bright light, and give it 60 seconds of your undistracted attention. Then turn to page 29 and see how well you can do with 10 questions which you will find there. Score 10 for each correct answer. 100 is perfect. Out of 25 AAF officers and enlisted men tested, the low was 40, the high score was 100. The average was 65.

HOW SHARP ARE YOU? Turn to page 29

Rendezvous

(*Continued from Page 1*)

The surgical tech has passed through the same school, has taken the same courses which are required by the "Flight Nurse" and is classified as an assistant to the "Flight Nurse" on evacuation missions. At times the surgical tech is called out to go on these missions alone.

With all due credit and respect to the "Flight Nurse" who is doing a wonderful job, how about the guy who accompanies her on these missions?

T/3 John J. Kloch, New York, N. Y.

Dear Editor:

We wish to congratulate you on the wonderful build-up you gave our "Flight Nurses" in the October issue of AIR FORCE. They are doing a swell job, but how about giving the enlisted men that work with them a little consideration? We work side by side with these nurses and would appreciate at least a sentence of recognition in a few of the articles that are published on "Air Evacuation." At times it has been necessary for us to carry on separately and in many cases it is our combined efforts that bring our patients safely to their destination!

Six Technicians, APO 133

You did get honorable mention in the article "G.I. Airline" in the September issue of AIR FORCE. *But we agree you deserve more and will try to do something about it. —Ed.*

Hail Columbia

DESIRE SOURCE OF INFORMATION ON AND TRUE LOCATION OF "TOWER MOCK-UP FOR WATER JUMPS" CREDITED TO THIS BASE*** ON PAGE 46 OF DECEMBER ISSUE OF AIR FORCE. THERE IS NO KNOWLEDGE OF SUCH A MOCK-UP ON THIS BASE. A REQUEST HAS BEEN MADE BY HEADQUARTERS AIR TECHNICAL SERVICE COMMAND, WRIGHT FIELD, FOR INFORMATION ON THIS MOCK-UP. WILL YOU CHECK THIS AND FORWARD NECESSARY INFORMATION TO ANSWER THIS AND OTHER REQUESTS WHICH HAVE ARRIVED.

(SIGNED) STOUT, CO, GREENVILLE (S. C.) ARMY AIR BASE.

It was South Carolina, all right, but the Office of Flying Safety which submitted the item for publication says its report should have read "Columbia Army Air Base" not Greenville. OFS apologies to Greenville, hats off to Columbia.—Ed.

Whose Error?

Dear Editor:

Having always looked forward every month to a copy of AIR FORCE and regarding it as the most accurate aviation publication in existence, I was very shocked to find such an unpardonable error in aircraft identification as you made in your December, 1944, issue.

In the fourth paragraph of your article "Human Pick-up" you quote "On September 5, 1943, Lt. Alexis Doster was yanked from the ground, hurtled through the air and safely pulled into a Stinson Reliant"

unquote. The airplane shown in the article is beyond doubt a Noorduyn Norseman or C-64A (AAF designation). Correct me if I am wrong.

S/Sgt. Willard H. Hart, Tonopah, Nev.

Your aircraft recognition is good but your leap at conclusions falls short. The article said that the FIRST *pick-up was by a Stinson Reliant. The pick-up illustrated is a later experiment.—Ed.*

Hot Argument

Dear Editor:

In your August, 1944, edition of AIR FORCE, Page 30, you have a series of high-speed pictures showing a P-47 firing a rocket projectile. The caption states that the prop was feathered to permit making the photo-series. We know that P-47s are like angels to our bombers, namely B-17s, but we didn't know they could full feather their props. Please let me know if they can, or if it was a special plane with a feathering motor just for picture taking purposes. Our hut has a hot argument on the subject.

Cpl. Lester Eagle, APO 559

It was specially equipped with a full-feathering prop.—Ed.

Don't Throw In the Towel

Dear Editor:

I have a tip for flying radio operators which you may or may not be able to use. It has been a persistent hindrance to efficient communications for a long time. Here we go:

Novice flying radio operators sometimes forget the AACS facilities available to them. Destination and point of departure are the only stations they try to contact. If, for innumerable reasons (QRM, QRN, QRL, an inattentive operator, etc.), they fail to get their message through, the fledglings either throw in the towel, or keep pounding away vainly, while their important message is delayed.

Take a look at the AACS facilities charts, fellers! All AACS stations are at your service. Especially intervening stations along your route. If you don't get one, call another, and he will QSP. If your attempts at contact are futile and a strange AACS station offers to QSP, don't hesitate; give him your message. If your station is QSA 1, and an intermediate station is QSA 4 or 5, let him QSP.

AACS will get your message to its destination in short order, using varied radio facilities. Let us help you flying men. That's our primary purpose for existence.

Sgt. Saul Rafalowitz, APO 675

Women and Wings

Dear Editor:

. . . I am not a member of an aircrew and therefore do not wear wings. I would like to know whether my wife or mother is entitled to wear the wings of the National Association of Air Forces Women which was mentioned in the November issue. . . .

Sgt. Erwin Gardiner, New Orleans, La.

Yes. The wings of the National Associa-

(Continued on Page 42)

In This Issue

The man on the cover this month is not from Mars, he's from Saginaw, Mich. He is Cpl. William H. Barnes, Jr., formerly a bank clerk in Saginaw and now an AAF Airdrome Traffic Controller in England where he added a course in an RAF Traffic Control school to his American training. From the plexiglas dome, which was salvaged from a Fortress, he has an unobstructed view of 360 degrees of horizon, and, of course, radio communication with planes on the ground and in the air.

The photograph was taken by Capt. Robert Isear, chief of the photo section of USSTAF's PRO office. He escapes from London occasionally and usually returns from field trips with some superb shots. The cover on the Cross Country section this month (Page 21) is another fine sample of his work.

One of the great untold stories of the war to date is what happened to the thousands of Allied airmen who parachuted into enemy-held territory. Now that most of France and Belgium has been liberated, some of the stories can be told. Our correspondent in the Mediterranean area, Capt. Lawrence P. Bachmann, offers you on Page 4 one of the first narratives of its kind to be passed by the censors. He calls it, for obvious reasons, "The Blister Club," and when you've finished it you'll understand why we've given it the lead spot in this issue.

One of the oddest reports we've had in a long time comes from Maj. Charles Frazer, just returned from a tour of duty as our correspondent in the ETO. He says he has it on good authority that some of our C-47s extensively used in glider snatching and towing operations have stretched a good ten inches. Checking this yarn, which also stretches our credulity, is practically our next order of business. At the moment, it sounds more like a good item for "Shooting the Breeze."

We are very sorry to report that Lt. Bert Stiles, 8th Air Force fighter pilot whose article "Situation Normal . . ." appears on Page 19, has been reported missing in action since November 26. Those who remember his "Portrait of a Guy Thinking About An Island" in our November issue, or even his amusing letter in Rendezvous last month, will probably agree with us that besides being a versatile flyer (he finished a tour in Fortresses before switching to Mustangs) he is also one of the best writers in the AAF. He has a unique faculty for giving the earth-bound reader a sense of participation in air combat, and he has a wonderful ear for words. We sincerely hope that the next news we have of him will be good news.

On Pages 32 and 33 you will find some combat sketches by Capt. Raymond Creekmore, shown here looking remarkably cheerful in a photo taken just before the first Tokyo B-29 strike. A note from Creekmore informs us that he has taken another long hop in quest of battle scenes, this time in a Superfort that navigated a fighter-mission to Iwo Jima. According to Ray, it was an exciting trip with the P-38s going in on the deck, strafing ships, shooting up shore installations, chasing one Jap plane 25 miles out to sea before shooting it down. There was some defensive fire, and while the Superfort was not hit, one of the P-38s came limping out with considerable battle damage. The big bomber took the peashooter almost literally under its wing and shepherded it home across hundreds of miles of open sea.

Maj. David Weld who wrote "The Care and Briefing of Fighter Pilots" on Page 9, is a non-rated young officer who wears the Legion of Merit, the Soldier's Medal, the Air Medal with cluster, and his Unit Citation with two clusters—all acquired since he left Wall Street back in 1942. He was home on a 30-day furlough when we approached him with the suggestion that he try an article on S-2 work for us. The job kept him in this country a few days longer after the furlough expired, but his CO in the Mediterranean was very reasonable about lending him to us on TD. Weld didn't object either; he was able to spend Christmas with his wife and three small children.

Maj. Herb Johansen, our correspondent in the Philippines who wrote "The Fighting 13th" on Page 16 this month, is working on a story of the excitement and confusion attendant on the Japs' paratroop attack on Leyte. He says that at the San Pablo strip the Japs acted as if they were drunk or had been drugged. They were singing, yelling, and three of them were playing musical instruments—a jew's-harp, a harmonica and a small horn (probably identifying or rallying signals) and they shouted crazily, "Hello, hello, where are your machine guns?" Their work of destruction had neither rhyme nor reason . . . but we'll let him tell his own story in a forthcoming issue. ☆

The Blister Club

Shot down into enemy-held territory, many of our airmen have walked through incredible hardship and danger to safety. Here are the stories of some charter members of the Blister Club who were recently repatriated from Switzerland

Thirteen members of the Blister Club, on their way home from Switzerland, take time out for a stretch and a cheer as they cross the border.

BY CAPT. LAWRENCE P. BACHMANN

AIR FORCE *Overseas Staff*

Clang, clang, clang went the trolley—which was packed with cheering, half-hysterical Americans on their way home. It slowed down as it neared the Swiss-French border and the Americans jumped out doors and windows before it stopped rolling. Waiting for them at the barbed wire that marked the frontier were an American brigadier general, many high-ranking Swiss, and a covey of U. S. colonels.

The whistling and cheering died down—the American uniforms seemed to remind our mufti-garbed flyers that they were still in the Army. A tall rangy captain, pilot of a B-17 that had been shot down months before, called them to attention and they fell in in double line. He called roll, about-faced, saluted the general, Brig. Gen. R. B. Legge, and reported that his escapees were all present and accounted for.

General Legge, in turn, checked the roll with the Swiss representatives and there followed a great deal of muttering and head-wagging—there were 60 Americans but the rolls listed only 59. While the Swiss counted and recounted and checked through papers, the U. S. colonels on the French side of the border grew increasingly nervous.

They'd come a long way to arrange for the release of the AAF aircrew members and no one wanted to see negotiations break down now. The Swiss had amply demonstrated that they had no intention of risking their neutrality—which many Swiss consider their most important national industry—and never would have consented to the release of any Americans were they not sure it was completely legal and super-neutral.

The Swiss scrupulously observe those articles of interna-

tional law which provide that belligerents who land in neutral territory will be interned for the duration. Thus all aircrew members who brought their crippled planes down on Swiss soil—or parachuted onto it—still are being held and probably will be until the war in Europe is officially over.

However, men who escaped from the enemy and sought safety in Switzerland — who walked unarmed into the country—are considered escapees rather than internees. According to a law which probably goes back to medieval times, escapees are entitled to sanctuary and are treated like tourists—perfectly free to leave. This was purely theoretical until we had liberated some of France touching on Switzerland and could effect the rescue of the escapees. The 60 airmen standing at attention on the French border were the first escapees thus released from Switzerland in this war.

As soon as Lt. Gen. Alex M. Patch's ground troops had reached the Swiss border international negotiations were begun through General Legge, our Military Attaché in Switzerland. He asked Lt. Gen. Ira C. Eaker, commanding general of MAAF, to send a party up to the Swiss border to arrange the details and take care of the men. Thus on our side of the border there was an organization of the 15th Air Force called ACRU—Air Crew Recovery Unit—which boasted a 2½-ton truck, a bus, and some bilingual officers.

Their local negotiations in the Haute-Savoie section of France had been conducted through the head of the FFI in the area—a semi-legendary individual always spoken of as "Niveau." He turned out to be an American officer, raised in France, who had been dropped by parachute in Haute-Savoie in June, 1944. A round-faced man in his late twenties, he alternated between American Army uniform and the clothes of a typical Frenchman—and by his contacts and knowledge materially helped ACRU make its preparations.

The preparations had seemed foolproof—but there were the Swiss looking unhappy and rechecking the roll. Finally it was found that the error was purely clerical; the missing name was added to the list, and the men started passing through customs. As each had only one small bag the examination went quickly and soon they were all in France.

Happy Blister Clubbers, awaiting transportation to the U. S., display a varied collection of German souvenirs they obtained from prisoners.

En route to the small French town where ACRU and Niveau had arranged quarters for them, they were given some K rations as a snack. These they devoured as though they were seven-course turkey dinners, relished out of nostalgia rather than hunger.

For they had been well taken care of in Switzerland. Put up at some of the best hotels in world-famous resorts, they had the freedom of the villages, learned to ski, ate well, received full pay—and grew unbearably bored of listening to radio reports of the war and having no part in it. Some of the boys got so angry at Swiss prices that they took to making their own insignia rather than pay $1.75 for a single lieutenant's bar or $7.00 for a pair of pilot's wings. This was an important item because most of them had been helped into Switzerland by members of the underground of Belgium, Holland or France who had collected all available AAF insignia as souvenirs.

When they were greeted by ACRU most of them wore civilian clothes of every shape and form. Some were as smart as Bond Street Beau Brummels; others looked like Mickey Rooney characters, but all had one thing in common—the silver boot insignia of the Blister Club proudly worn on their lapels or their neckties.

This strange looking but happy crew was quartered for the night in a little town near the Swiss border and Intelligence officers went to work interrogating them about their escapes from enemy territory:

An 8th Air Force lieutenant, copilot of a B-17, was on the December 30, 1943, raid on Ludwigshaven. It was his fourth mission. The Luftwaffe was up in force that day and one of the fighters came in close enough to knock out one of his engines. The plane lost speed, fell out of formation and German fighters closed in—knocking out another engine. The pilot dove through clouds to shake them off, diving from 23,000 to 1,000 feet, and broke out right over a German airdrome which welcomed them with a hail of light flak. The tail gunner was badly hurt and could not bail out, so they decided to crash land near the Belgian border.

The pilot ordered the crew to split up into pairs and make for the Swiss border while he remained with the wounded tail gunner. Some months later the copilot and his companion, a waist gunner, learned that the wounded man died 14 days later. The pilot left only after burying his man in a French cemetery. Later, when their only mail came from home, they learned that the pilot and the rest of the crew were safe in America.

The lieutenant and the sergeant, though dressed in fur-lined, leather flying clothes, walked through occupied territory unquestioned for three days. Finally they reached a farm where the French owner gave them some clothing, although he could speak no English and they no French. After that they walked for an additional two days and still saw no signs of the enemy. They were exhausted and their feet were blistered when a French family, where they stopped to ask for water, put them up for two days.

Only an hour after they left this family they were stopped by a French policeman who demanded their papers. Believing it was all up, they confessed to being Americans and the policeman shepherded them toward town—but turned them into a small house on the outskirts where lived a member of the underground. The French were very worried for

(*Continued on Page 56*)

Back Home — and Then What?

The latest word on rotation and what happens to the 18,000 AAF returnees coming home each month

BY MAJ. BENJAMIN J. GRANT, JR.

AIR FORCE Staff

If you are overseas, if you have been overseas, or if you have any prospect of going overseas in this war, this article is for you. It will undertake to answer three important questions:

1. What rotation is provided for AAF personnel overseas?
2. Are men who have completed one tour of duty overseas likely to be sent overseas again?
3. What is done with returnees in the United States?

The information contained in this article amounts to a roundup of policies established in Headquarters AAF, the Personnel Distribution Command, the Training Command, the continental Air Forces, and other AAF activities involved in the rotation and assignment of personnel—policies which are tempered by military necessity and which, so far as they can be spelled out at this time, provide the best answers to these questions.

Take question No. 1. There is one answer for aircrew personnel and another for ground personnel.

The AAF produces and delivers enough new aircrews so that overseas air commanders are able to maintain necessary crew strength and still send some home. Sometimes commanders have been able to estimate in terms of the number of missions when crews can be released. Sometimes it is by approximate dates. But in any case, there is rotation only when enough replacements are on hand so that veterans can leave.

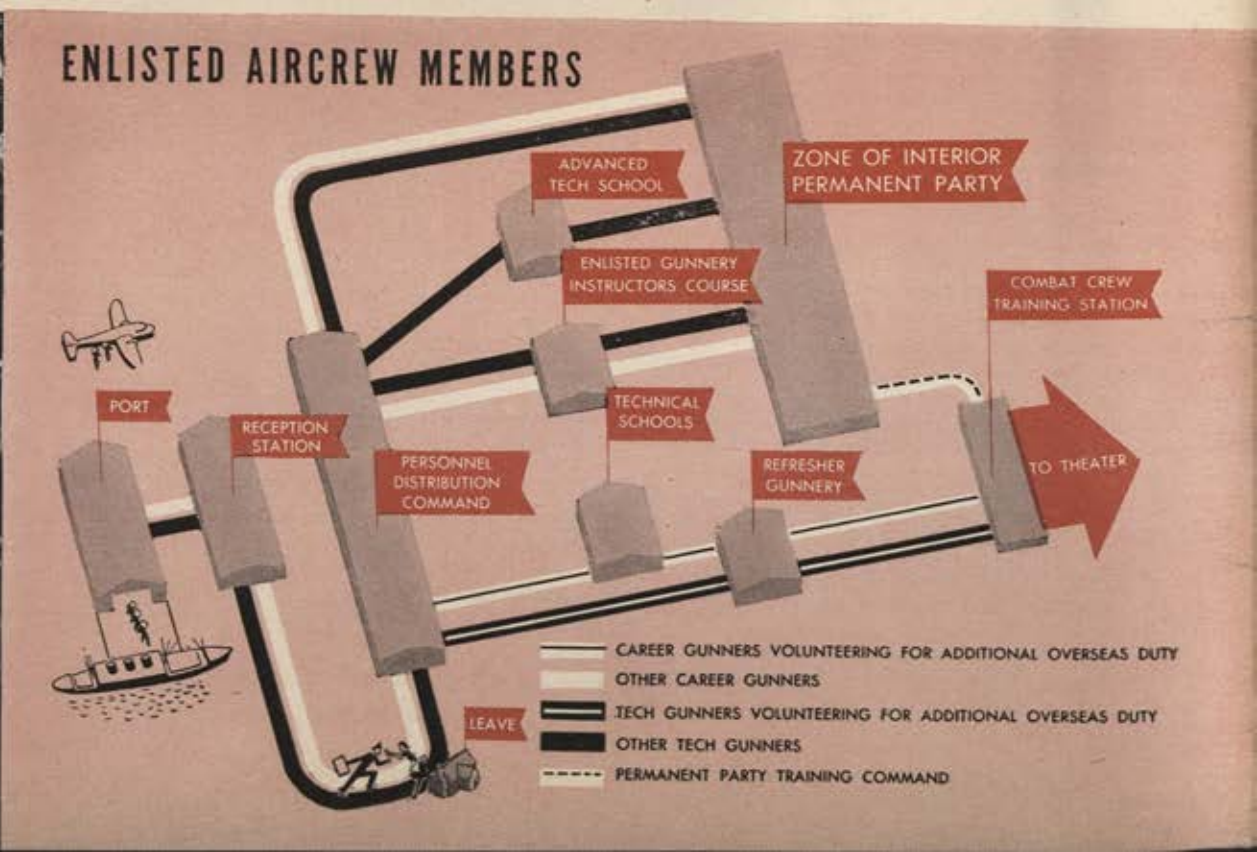
So far as ground personnel is concerned, there is little rotation. The greatest difficulty is shortage of manpower. A man cannot be returned from the theater unless a replacement for him has been sent over from the United States. Availability of outbound shipping space also is a factor, since priority goes to essential supplies and equipment and to the personnel necessary for loss replacements. That leaves but little room aboard our ships for rotation replacements. AAF ground personnel must take their chances along with all other War Department personnel.

From some theaters, the rotation of ground personnel is one percent per month. From others, it is one-half of one percent. From the United Kingdom, there is no rotation of ground personnel at all. Frankly, the odds are against returning any large numbers of ground personnel by rotation before the war ends.

About second tours overseas. Obviously, this question cannot be answered flatly yes or no. It depends, like everything else, on how the war goes. It depends upon the special skills of individuals and how much these special skills are needed in Europe or Asia or wherever else AAF personnel are stationed in this war.

But on this much, AAF policy is well settled: Combat veterans are sent overseas for second tours only when military conditions require it. When it becomes necessary to order personnel out for second tours of duty overseas, all those physically and professionally qualified will be considered available. Time back in the U. S. will be a factor in selection.

What about the aircrew member, officer or enlisted, returned on the regular rotation basis, who decides he would like to volunteer for another tour overseas? He may do so,



either at the redistribution station or later at the station of his continental assignment. His experience is welcomed by the theater.

Generally speaking, volunteers will be returned to the theater in jobs involving the same skills as the jobs they held on their previous tours. However, some opportunities are provided for training in new specialties.

What is done with returnees in the United States?

The answer to this third question is more complicated. It will be necessary to state some general rules which apply to all returnees. Then we shall discuss them by groups—enlisted aircrew members, flying officers, ground personnel.

For purposes of this discussion we shall not include those who have been returned for physical reasons. The care they are given has been described before in AIR FORCE. It is sufficient to point out that if and when they are fully able to do so, they join the regular personnel flow which will be described hereafter.

Because of the variety of specialists being returned, it is impossible here to explain in detail the assignment of each type of returnee. Detailed information is given to individuals at redistribution stations. The personnel flow for aircrew members outlined here applies only to individuals physically qualified for further flying duty. Personnel not physically qualified for further flying duty will be assigned to air forces' and commands' permanent parties either for duty based on individual skills and experience or training for new jobs along with returned ground personnel.

For the first five weeks, the program is generally the same for all returnees. To start with, all are given 21 days' leave, at the end of which they report to redistribution stations for approximately two weeks. There are four of these stations: Atlantic City, Miami, Santa Monica, and Santa Ana.

Not many men are being sent to officer candidate schools now, but for the few who are selected, preference is given to qualified returnees from overseas.

This is a good place to scotch a rumor that has been circulated recently about new duty stations. No matter what anybody has told you or how straight they claimed to have got it, it is not true that all returnees are assigned to permanent duty stations close to their homes. Think about it for a moment and you will realize that this would be a physical impossibility. The U. S. area of greatest population is the northeast. The greatest concentration of AAF stations is in the south and west. It would be futile, therefore, to undertake to match up individuals and home areas. Incidentally, housing for dependents in many of these areas is as easy to find as a steam heated foxhole.

ENLISTED AIRCREW MEMBERS

The enlisted combat crew returnee who decides he wants to have another crack at the enemy normally goes back in the same job he had on his first tour. Because he may have his second tour in some other theater, he gets a period of refresher training designed to give him the lessons which the AAF has learned in all theaters. For the career gunner, there is an opportunity for technical training so that on the next trip out he goes as a technician gunner. As far as possible, he is given some choice about the kind of plane he does his shooting from.

A volunteer for another tour can expect to be in the U. S. about six months before going overseas again.

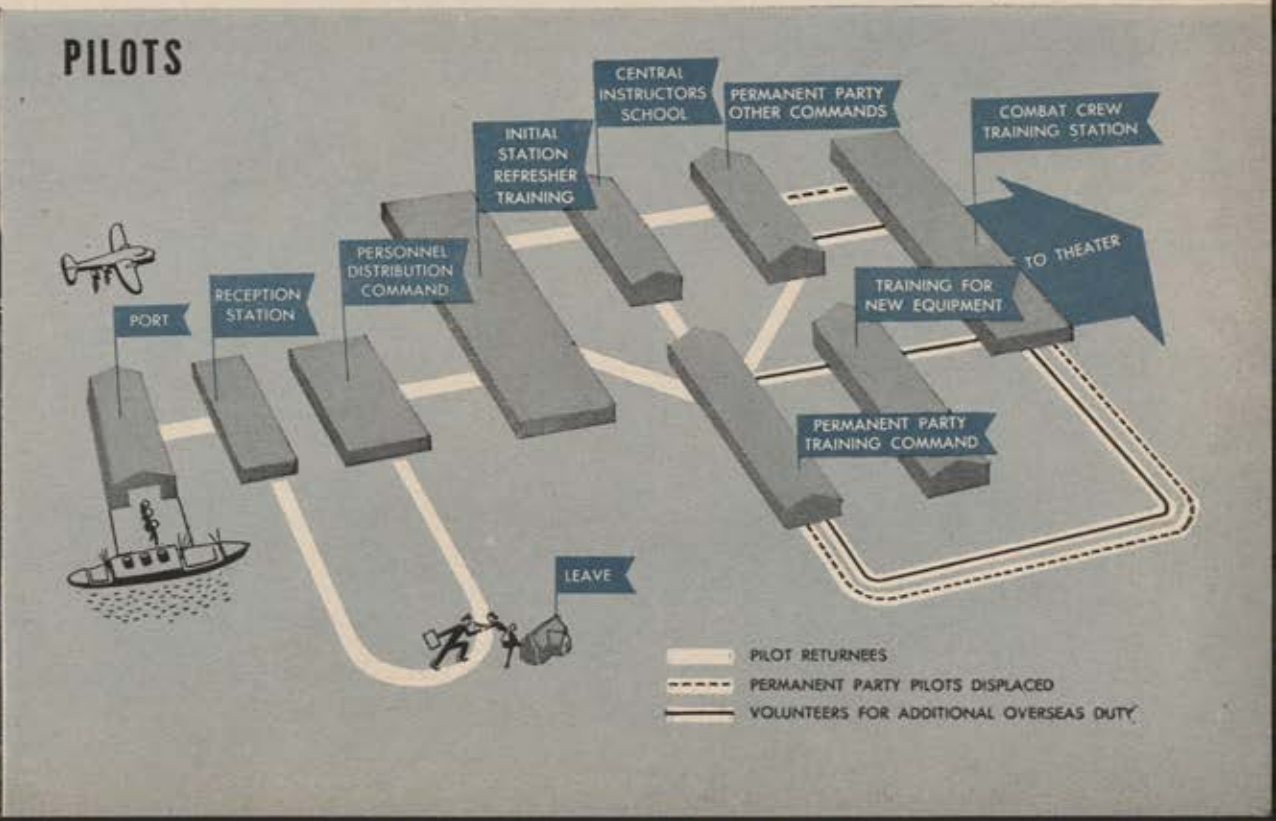
For returnees who want to stay in this country, the situation is different. Those who become air operating gunnery instructors or who are assigned as flying crew chiefs continue on flying status. These are few. The great majority will get non-flying jobs and will be required to give up their flying pay. The ones selected to be instructors take the enlisted gunnery instructors course. Some receive training in their basic skills and get ground assignments requiring those skills.

The number of individuals coming into the AAF now is only enough to replace our actual losses. Thus, if we are to have rotation, many of those who come home must fill the jobs of the AAF ground men who have been sent to gunnery training so that they in turn could replace men overseas. Thus, a returnee may get a desk job or a housekeeping job or whatever it takes to fill the place of a man who is on his way to combat.

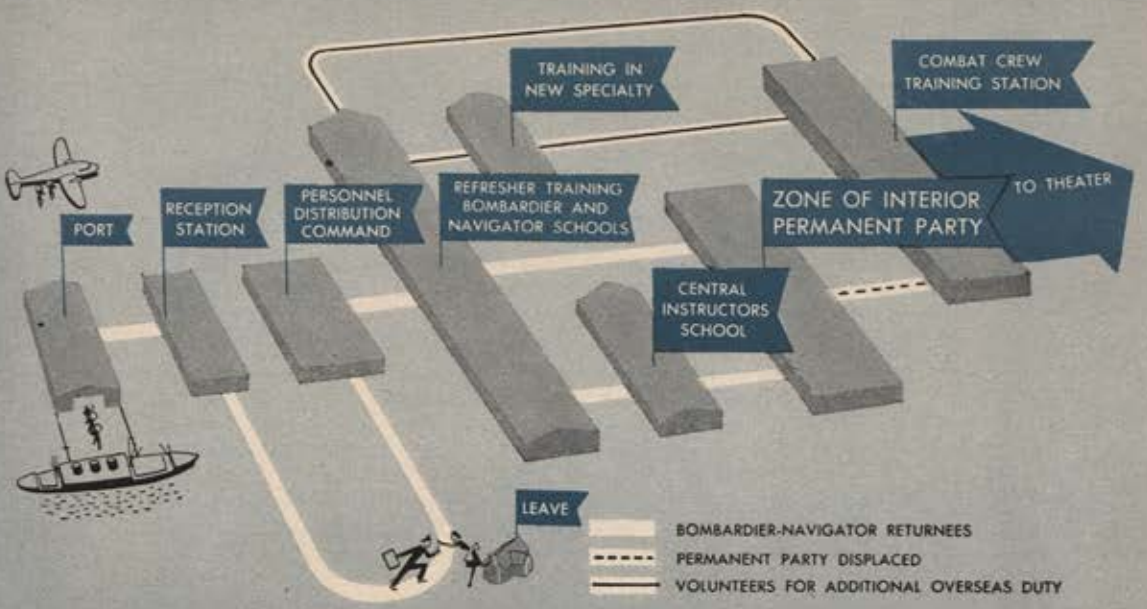
FLYING OFFICERS

Except for those who are given special assignments directly from redistribution stations—and there aren't many such assignments—returned rated officers are sent to the Training Command for refresher and perhaps other training.

Some pilot officers are sent to Central Instructors School



NAVIGATORS AND BOMBARDIERS



for training to become instructors. Others are absorbed in administrative duties or technical permanent party positions or assigned to special flying duties. Copilots are given an opportunity for upgrading to first pilots.

All bombardiers and navigators receive refresher training except those who volunteer for and are found qualified for pilot training. Some are selected for instructor school training after the refresher course, and others are given an opportunity for specialized training in the radar observer bombardment program. The rest are assigned to permanent party administrative or technical duties.

Generally, rated officers who want further overseas duty will be returned in the same skills they had during previous overseas service. In all cases, however, the volunteer for a second tour receives refresher training in his specialty before taking approximately three months of training in the combat crew training system.

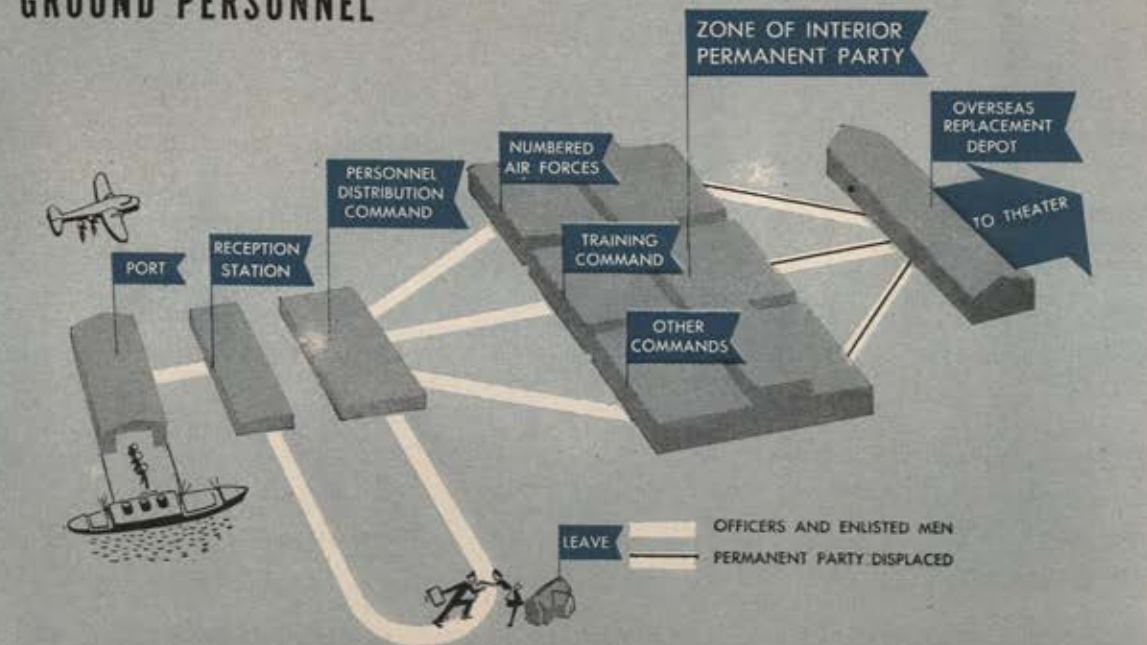
GROUND PERSONNEL

Generally speaking, the program for non-rated officers and non-rated enlisted men is the same. From the redistribution station, they go direct to new assignments in permanent parties of domestic air forces and commands, releasing others for overseas duty.

The rate of return of AAF personnel from overseas has reached 18,000 a month, and it will increase. But no matter how great the load becomes, the AAF intends to continue processing returnees as individuals, not as mere names from the punch cards. On that foundation, squared with the needs of war, AAF personnel policies are established.

This article has stated policies as they exist today. It is a developing situation. As requirements change, so must AAF personnel policies change. AIR FORCE will report important developments. ☆

GROUND PERSONNEL



The Care and Briefing of Fighter Pilots

A Group Intelligence Officer is necessarily a man of many talents. Here are some words of wisdom based on two years in the Mediterranean area

BY MAJ. DAVID WELD

S-2, 82nd Fighter Group, 15th Air Force

Before joining our outfit to go overseas, we S-2s—fresh out of Harrisburg—had some pretty odd ideas as to what our work would be like. Some of us anticipated an existence devoted primarily to aircraft recognition, airdrome defense plans, outwitting enemy agents, and occasional spells as mess officer. To most of us greenhorns, a "bandit" was just a native guerrilla, and a "split-S" something you'd find in alphabet soup.

What we definitely did not expect was to become a cross between a scoutmaster, batman, all-night clerk, father confessor, and master of ceremonies. We found all these things were required of us; discovered that the job of S-2 in a long range fighter group today is a profession that takes at least four months of combat operations to learn. But there is nothing mysterious about it and anybody can learn it, Harrisburg-trained or not.

A fighter S-2 is all things to his men. He wakes up his pilots before the mission, sees that they get to briefing, runs them out to their planes in his jeep, sweats them out while they're in the air, and interrogates them on return. He drives his boys to the Red Cross Club or maybe takes them swimming on stand-down days. He helps the new pilots feel at home and cooperates with the flight surgeons in spotting pilots who should be grounded. He keeps the squadron diary, usually censors the whole outfit's mail, takes his trick as officer of the day—getting good and lost on moonless nights while inspecting the guard—and provides a continuity of procedure as commanding officers and pilots are replaced by new ones.

It is probably an advantage for an S-2 to have flown a little in combat—enough so that he has some idea what enemy fighters and flak look like. But flying as an observer is not always a profitable venture. Back in the autumn of 1943, Capt. Clarence H. (Pop) Corning, squadron S-2 and ardent devotee of the classics, asked the CO's permission to ride in a B-25 as observer on a P-38 escorted mission over Athens. "Pop," said Lt. Col. George M. MacNicol in his dry fashion, "that's a hell of a way to get culture." It was. Pop is now helping sustain the morale in Stalagluft 3.

The job of S-2 varies somewhat with each fighter group. In our P-38 group—the 82nd of the 15th Air Force, the S-2 among other things writes up all citations for awards and decorations, keeps historical records, takes care of training pilots in air-sea rescue, P/W conduct, and aircraft recognition. The primary distinction between squadron and group S-2s is that the former live on closer terms with the pilots while the latter spend more of their time running the office and battling with the mission orders which stream in all night long.

Enlisted men in the completely centralized S-2 office do the basic work. They keep the target information section up to date, maintain the situation maps, neatly file the thousands of maps required for operating any place in the theater, prepare maps for the pilots on missions, type up all reports, write all PRO material and keep the many records up to date.

The primary and most exacting task of an S-2 does not lie, as many think, in interrogation and reporting the results of each mission. It lies in the role he plays in the briefing

and in his share in the planning of the operation itself.

In the case of the 82nd we started from zero and grew gradually into this job. In the beginning our pilots were escorting medium bombers over Tunisian ground targets or on interminable sea sweeps after enemy shipping. There was no separate briefing for the "peashooter" pilots who simply listened in to the bomber briefing from the back of the dark, crowded French warehouse at Telergma. The principal S-2 headache in those days was unravelling the stories of the pilots' repeated battles with the Luftwaffe.

Independent briefing of the group's pilots did not materialize until the unit finally moved from Telergma's muddy airdrome to a separate base at nearby Berteaux. Here for a while our work continued to be straight escort missions where in a pinch the pilots can make out with a super-condensed briefing giving but five items: time, place, and altitude of rendezvous; type of bomber to be escorted, and target. Of course we always gave data on flak, enemy fighters, etc., but in this type of work an omission ordinarily would not have been fatal.

From doing nothing but escort work, we finally graduated to occasional independent fighter missions in April, 1943—and briefing became proportionately more complicated. First such mission was a fighter interception of the Axis aerial transport fleets bringing vital supplies to the beleaguered Germans in Tunisia. When the traffic had attained attractive proportions, the 82nd was given the first interception job off Cap Bon. In a couple of weeks Allied fighters obliterated this vital aerial line of supplies. The 82nd alone destroyed over sixty aircraft in four missions. Our pilots paid tribute to the luckless German pilots who kept their blazing, oil-laden JU-52s flying on in tight formation until they finally blew up or went out of control.

Intensive study of photographs added its burden to the S-2's life when the group received its first dive-bombing assignments in the spring of 1943. The aerial conquest of Pantalleria gave the S-2s little chance to sleep, with as many as 10 missions a day being dispatched to dive-bomb the Island's coastal gun positions. Aided by a magnificent eight-foot tall photo mosaic of the island of Pantalleria and numerous photographs of the various targets, intelligence officers made certain that each pilot was thoroughly familiar with the appearance and layout of his prospective target.

Bomb-carrying Lightnings carried out their most effective mission

First actual use of contour maps confronted the S-2s when the group's P-38s undertook simultaneously to dive-bomb the Pantalleria airdrome and skip-bomb its underground hangars. Our Lightnings came in from the west on the deck, roared across the airfield, and released their bombs in front of the wide doors of the underground hangars. Several hits were made on and near the hangars, which were literally dug into the steep hillside.

A new task came to the group's intelligence officers with the invasion of Sicily. We wanted the pilots to learn by heart some 70-odd words and phrases peculiar to British radio lingo. Such knowledge was essential for communication between the P-38s and the controller of the Sicily-bound convoys which the Lightnings were to protect by an elaborate and complex system of patrolling.

Several months later another type of patrol was undertaken by the P-38s—this time over the Salerno beachhead. Here the Lightnings operated under the direction of a ground radio controller who directed them to intercept enemy aircraft or dive-bomb special ground targets. This

"Droop-Snoot" is what the boys call this P-38 which has given up its armament for a plexiglas nose, Norden bombsight, and bombardier. P-38 bombardiers are recruited from heavy bomb groups.

against this section of the Romana Americana Oil Refinery at Ploesti, Romania.

Here are P-38s ready to go on the war path. P-38 in top photo carries belly tank and 1,000 lb. bomb. These planes hit refinery shown at left. Bottom P-38 packs six 500-pounders, used for high-level or dive-bombing.

patrol work was new and ticklish stuff to many of the pilots.

On August 25, 1943, 140 P-38s of the 1st, 14th, and 82nd Fighter Groups executed the first mass long-range, low-level strafing mission of the war against the Foggia network of airdromes. S-2 spent more sleepless nights preparing for the attack which was led from Tunisian bases by the late Lt. Col. George M. MacNicol wearing his ridiculous lucky Scotch plaid golfing cap, which he was superstitiously careful to take on every mission—except his last airplane ride. This raid crippled the strong German bomber forces around Foggia at a vital time before the Salerno landing.

Not until the end of 1943 did our group switch from escorting medium bombers to working with the heavies, although the other two P-38 groups had been doing the latter job for some time. The change involved no real new problems for the S-2, except that the pilots were unhappy about having to fly at the higher altitude, because of less satisfactory plane performance, colder temperatures, and the necessity for oxygen.

As the 15th Air Force doubled and quadrupled in size with B-24 groups pouring over from the States, the S-2 briefing officer found it increasingly necessary to emphasize every possible point which would help the pilots effect a satisfactory rendezvous with the proper bomb groups. This was not an easy task in bad weather with bombers scattered all over the sky. But it was all-important, for a formation of heavies without its assigned escort would often find enemy fighters standing off and slinging rockets in at them in most unpleasant fashion.

When in the summer of 1944 we started to use our fighters as high-level precision bombers the S-2s were confronted in miniature with all the problems of a heavy bomb group: approach, target recognition, etc. This innovation just about completed the succession of tasks assigned to the versatile P-38.

No small part of an S-2's job consists of assisting his CO in planning the mission, especially in the case of a low-level strafing attack on an enemy airdrome. Here the course selected must avoid all known or suspected enemy gun positions. The route must have good check points and turning points, since any sharp change on the deck at the last minute is impossible. The final run in to the target must be chosen with great care to offer enemy guns minimum shots and maximum deflection. On his photos the S-2 must indicate the position of every enemy aircraft and every gun, also he must show every high obstacle such as high tension wires and any ammunition dump. Fighter pilots are understandably sensitive about running into the former or shooting into the latter..

On a mission against a fixed target, the S-2 cannot spend too much time poring over his photographs with stereoscope and magnifying glass, as well as studying his small

(Continued on Page 54)

THIS IS YOUR ENEMY

. . . it's your life or his

Family Argument. Kodo-ha, the radical party in the Japanese Army, is devoted to the uncompromising armed expression of the "Japanese Spirit" both at home and abroad. It is opposed to Tosei-ha, the more conservative group which also advocates widespread expansion abroad but favors a less severe policy of discipline, control and cooperation at home. To the group of extremists belong such fire-eating Japanese as Tojo, Itagaki and Mazaki, as well as numerous hot-blooded younger officers. Tosei-ha claims Koiso, Sugiyama, Ugaki and the majority of members of the present Japanese government.

From 1931 to 1944, the Japanese were generally under the influence of Kodo-ha. During the months immediately after Pearl Harbor, that influence was unchallenged. As late as last February, the Kodo-ha reign was at its height. That month Sugiyama lost his post as chief of staff, and Tojo added that title to his honors of war. The active power of Kodo-ha ended in July, 1944, when Tojo's government fell and gave place to Koiso. The new ministry included Sugiyama as Minister of War.

When Kodo-ha was last restricted by the milder methods of Tosei-ha, in 1935, the hot-bloods first expressed their disapproval in random mutinies. A little later, organized assassination was chosen to upset the army leaders and politicians which Kodo-ha considered too conservative. That the radicals will try any such methods in 1945 is not very likely. The two factions hate each other but not so much as they hate all foreigners. They disagree completely on the amount of steel and brimstone that should go into Army methods, but they have a common goal—the expansion of the Japanese Empire. Internal rivalry has not been permitted to interfere with the prosecution of this aim.

Notes on Germany. A considerable number of Nazi leaders reportedly are going "underground" by having fake obituaries of themselves printed in German newspapers. Thus they hope to work after Germany's defeat, in Switzerland and Sweden and even Germany under false names and without having to shoulder the responsibility for their former murders, thefts and other misdeeds. . . . Because of the increasing petrol shortage there are many more horse cabs than automobiles on the streets of Berlin. . . . Germany's largest ARP shelter, near Bochum, has been finished. It is a natural cave and contains among other conveniences, a merry-go-round for amusement of children during air attacks.

Tricks. As we have emphasized before in this department, the Jap is a crafty and cunning soldier. Here are some of the tricks currently worthy of note:

- Activity and noise in the form of lighted cigarettes, firecrackers, moving vehicles and barking dogs have been used opposite our positions to lead us to believe a counterattack was imminent.
- Booby traps have been fastened to dead Allied and Jap soldiers and fuzed to detonate when the body was moved.
- A dead Allied soldier has been put in a conspicuous place, with a concealed automatic weapon nearby pointing at the dead man. When Allied troops attempt to remove the body, they are shot.
- Badly wounded or apparently dead Japs have thrown hand grenades at medical personnel going to their aid.
- Firecrackers have been used to simulate machine-gun fire.

"Wounded Japs have thrown hand grenades at medical personnel . . ."

Inside Germany. Eight million foreign workers inside Germany are helping to meet the Nazi need for manpower, but they constitute a growing threat of disorder within the Reich.

This labor group includes 3,000,000 nationals of the Soviet Union, nearly 2,000,000 Frenchmen, 1,500,000 Poles, 500,000 Belgians, between 300,000 and 400,000 Dutch and almost 350,000 each of Yugoslavs and Czechs. More than 2,000,000 of the total are prisoners of war. The others are conscripts torn from their homes by force, outright collaborationists from what were occupied countries, and volunteers who were attracted to German jobs by better working conditions and pay.

Eight million foreigners—the overwhelming majority of them forcibly detained in the Reich and actually Germany's bitter enemies—naturally would be a powerful force unwatched. Nobody knows this better than the Nazis. Their measures regarding foreign workers have fallen into two categories: (1) conciliatory measures designed to gain the workers' willing cooperation and (2) controls restricting movement and contact with the German population.

German labor authorities have given foreign workers in Germany, with the exception of prisoners, almost the same rights as those of German labor. Foreign workers, except Soviets and Poles, have been given German-standard food, pay and living conditions.

Other appeasement gestures include granting of compensation for air-raid injuries, inclusion in annual youth labor competitions and permission for local establishment of social clubs for various nationalities.

But travel by foreign workers has been forbidden except in cases of extreme emergency. Whereas German absenteeism is reported to labor authorities, foreign absenteeism is reported to the police.

Foreign workers who heretofore have lived in private homes are being transferred to labor camps as rapidly as space in these camps permits.

Despite this program, many man-hours are being lost because of runaway foreign workers. Since most of France and the Lowlands were liberated, the escape route is shorter and more promising, and many of the foreign workers no longer have to worry about their families being punished by the Gestapo.

The several million hostile foreigners inside Germany are disorganized. They are of different nationalities. They are closely watched. But they have this common bond: they hate the Nazis.

Portrait by the Enemy. Japanese Imperial Army Headquarters recently ordered field commanders to give their opinions of American fighting ability.

One Jap commander reported: "The American understands machinery and is adroit at handling it. Speed characterizes his construction of airfields, motor roads and communication networks, and also his strengthening of positions. His strong air forces execute day and night attacks."

Another observed: "The basis of the tactics of the U. S. Army may be said to be a belief in the almighty power of materialistic fighting strength. Although Americans are not adept at military deception and subterfuge, their leadership is extremely reliable and their spirit in the offensive should not be treated lightly. In an offensive the customary tactics of the U. S. Army are to cut supply lines, isolate strategic key points and, by concentrating air and ground strength, exhaust and eventually capture these points. It has been established that the enemy is capable of altering his tactics quickly."

And another: "Against his admitted military assets, we must set down the decided weaknesses of the American soldier. He depends too much upon his material power and is deficient in spiritual strength. The men's sense of personal responsibility is not consistently high and there are many flaws in their security measures. U. S. forces, who place all faith in firepower, are weak in hand-to-hand combat. In this respect they certainly are not to be feared. We must guard against making headlong and reckless advances, however, even when we are achieving success in hand-to-hand combat . . . U. S. fighters are noisy, and a security-conscious soldier is the exception rather than the rule."

Air Defense. The Germans have been compelled to give their air defense system an overhauling. It worked fairly well when Allied bombers had to cross the Channel before reaching the bomb targets, but when our bombers starting operating from forward bases, Jerry found that he didn't receive the warning soon enough to get ready.

Before the invasion, the warning system gave Nazi fighters a chance to determine where their forces should be concentrated, and planes could be drawn from one area to defend another. Fighter pilots could rest in comfortable ready rooms until informed where they were needed.

But now they can't wait around for the warning. They must keep on the alert. Whenever reports indicate possible flying weather—even though the radar hasn't picked up a thing—German pilots must warm up their planes and sit in them, ready to take off if and when our bombers or fighters come. They must do this even if it entails several hours of useless waiting.

The German fighter defense system is organized now to function in this way: First, the weather service reports both German and Allied weather conditions as they will affect take-offs and landings and gives predictions of cloud types and heights. Next, long-range radar attempts to warn of approaching aircraft. Then, as the bombers come over Germany, radar and visual and aural observation keep tabs on the formations. When Jerry fighters take off they are directed to our bombers by controllers on the ground.

Many of the enemy's flak guns and balloon barrages have had to be redispersed. He has grouped his heavy antiaircraft guns into Gross-batteries, or three batteries of six guns each. But some of his flak guns have been moved from inner homeland defenses to the Siegfried Line as artillery pieces to be used against our invading armies. This does not mean that there is a serious shortage of light or heavy antiaircraft, but that the enemy does not have enough to spread everywhere as thickly as he would like. This is indicated by a partial substituting of balloon barrages for flak guns at smaller targets such as communications centers, railway yards and bridges, and power transformer and switching stations. These latter installations are now more and more the targets of our strafing and

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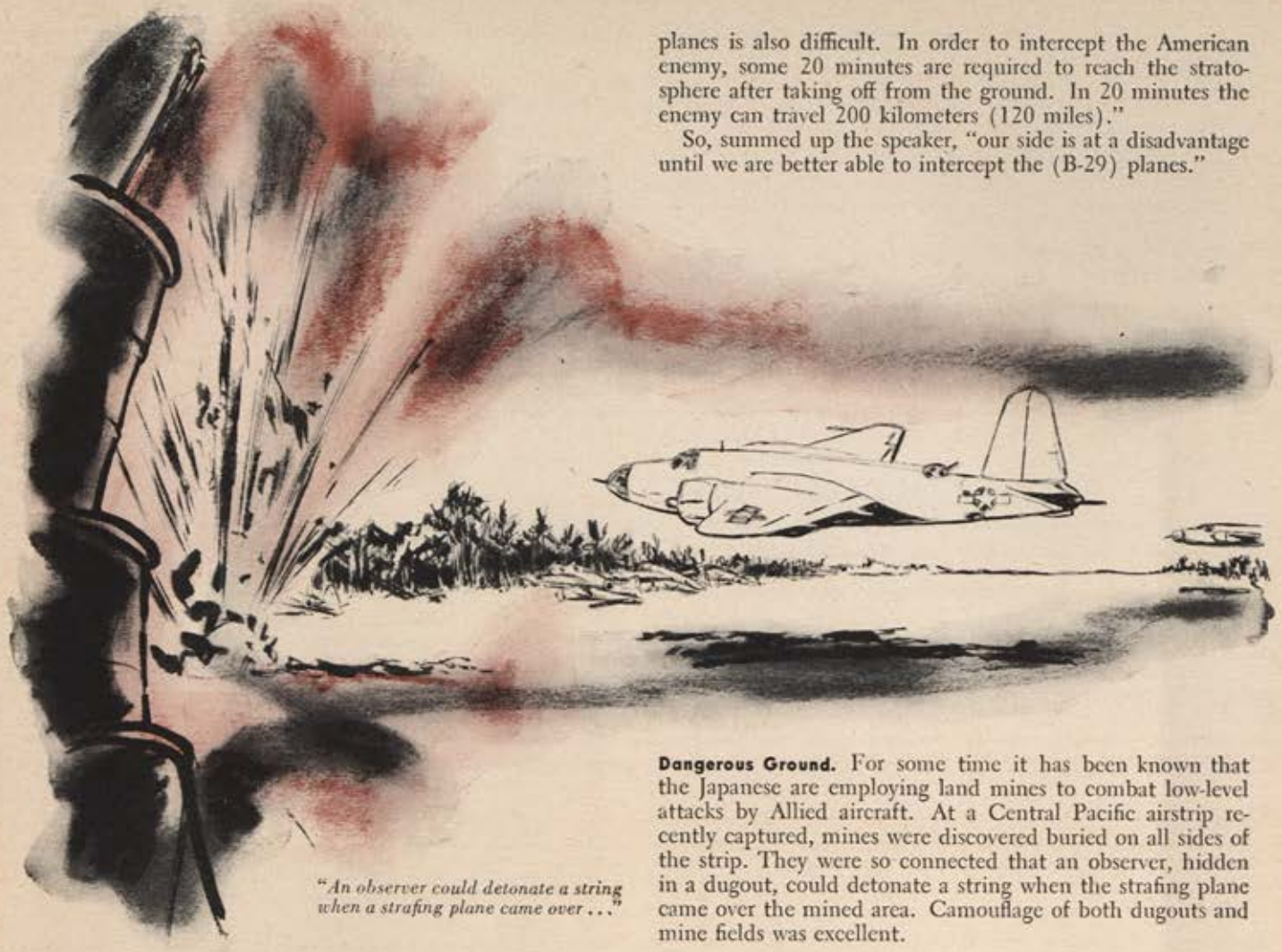


"An observer could detonate a string when a strafing plane came over . . ."

bomb-carrying fighters rather than our heavies. The enemy hopes the balloon barrages will prove as effective a defense as flak. Twenty balloons usually are employed to protect important bridges and 10 to shelter a power station.

A Better Way. It is Jap strategy when retreating to place obstructions on airfields so that we can't use them immediately. They use trestles, logs, mounds of earth, ditches, trenches. But frequently of late, they have found it more practical to leave behind them merely the craters from Allied bombs.

'Moonbeam'. Four 20 mm guns now are fixed aft of the cockpit on the Irving II, Jap night fighter. Electrically operated, each gun is fed by a drum containing 100 rounds. A fifth 20 mm gun is placed forward. Jap designation for the Irving is Gekko or "Moonbeam."

Facing Facts. In a talk beamed to the Empire, a Tokyo radio reporter recently gave a "realistic" appraisal of the difficulties involved in meeting our B-29 attacks. While maintaining that B-29 forces are suffering "huge" losses, the speaker pointed out that "it is difficult to discover the enemy from our (Jap) standpoint. Of course it is possible to intercept them with electric wave finders but it is difficult to do so with only the capacities of the ordinary plane finder."

Also, this speaker said, "It is difficult for antiaircraft shells to reach the American planes" and "interception by fighter planes is also difficult. In order to intercept the American enemy, some 20 minutes are required to reach the stratosphere after taking off from the ground. In 20 minutes the enemy can travel 200 kilometers (120 miles)."

So, summed up the speaker, "our side is at a disadvantage until we are better able to intercept the (B-29) planes."

Dangerous Ground. For some time it has been known that the Japanese are employing land mines to combat low-level attacks by Allied aircraft. At a Central Pacific airstrip recently captured, mines were discovered buried on all sides of the strip. They were so connected that an observer, hidden in a dugout, could detonate a string when the strafing plane came over the mined area. Camouflage of both dugouts and mine fields was excellent.

Volkssturm. There were two major political reasons for the creation last October of the Volkssturm or "People's Army" under exclusive control of the Nazi party.

First, by organizing all men "between 16 and 60 who are able to carry arms" Hitler was reinforcing his party's control of the masses. The nazification by decree of all German army officers had been much for the same reason. Both measures were intended as aids to the Gestapo's iron fist in keeping matters in hand.

Secondly, while maintaining the Nazi party at the pinnacle of command, Hitler wanted to make the German people, the German army and the Nazi party seem synonymous. Thus he thought to destroy the effect of any Allied propaganda directed to the German people or to the army against his Nazi party.

Thus, too, he hoped to create a threat of united guerrilla warfare by the German people that would induce the Allies to abandon demands for unconditional surrender. Himmler himself is responsible for the military training of the Volkssturm.

A Stockholm newspaper correspondent writing from Berlin remarked concerning the Volkssturm: A militarily disciplined organization now exists which can be used in the event of any attempt to revolt on the part of foreign workers. No mass flight from the industrial areas threatened by air attacks or the military situation need be feared any longer, as the Volkssturm regulations state that workers must immediately take up their weapons and that shirkers will be treated as deserters.

A recent Volkssturm rally was described as follows: There

were old men there with grey moustaches and protruding stomachs; there were ticket collectors from train cars, chauffeurs and postmen. They carried an assortment of weapons including long muskets and carbines, and even double-barreled shotguns. Boys carried hand grenades in their belts. Some wore steel helmets, either the usual German ones or round, grey Italian helmets. Others wore berets or skiing caps.

Evolution of Moods. Radio Tokyo has developed a series of special patriotic quivers for describing defense against Superfortress attacks. "Our Wild Eagles," proclaimed one announcer, "attacked the force of Flying Hippopotamuses and brought down all but a lonely few, which deserted their formation and scurried home." This rhetorical excitement represents one stage in a cycle of attitudes officially approved for comment on Superfortress attacks. This cycle of moods in which the B-29 exploits have been reported to the Japanese people represents a varied repertory of propaganda.

The B-29s were first treated with contempt. In all comments, American aircrews were customarily dubbed "fools." There was an inclination to laugh the whole thing off. Then came a mood devoted mainly to recrimination; in radio accounts, the B-29 crews changed from blithering idiots to cowards. Contempt was traded for incoherent anger.

From this attitude the radio announcers went on to a lyric celebration of the defenders of Tokyo—a mood that any nation might be expected to indulge in under the circumstances, but one to which the Japanese narrators lent an almost incoherent rhetoric of patriotism.

The commentators later began to emphasize the great mechanical advances of Japan's defending fighters. Without giving any details, of course, "our new fighter" became the refrain of every prediction concerning the defense of the islands. It is significant that recently the propaganda chorus has dwelt on the ability of the Japanese civilians to "take it" without benefit of wild eagle pilots or Utopian fighter planes.

New Flak. Incendiary flak pellets are being used by the Germans to start fires inside our airplanes. They are shot into the air in shells similar to those of ordinary flak. When the shells explode, the incendiary pellets are sprayed.

Pellets which failed to ignite have been recovered from our planes. The cap is painted yellow. Ignition apparently is caused by a direct blow on the pellet cap which drives a firing pin into a primer. This, in turn, fires an incendiary powder. The pellets are a little over an inch long.

The Raiden. The Japanese have a new fighter, which they say is scaring the wits out of us. A Tokyo radio reporter gave this description, none too detailed, of the new fighter:

"The first time the 'Raiden' (Jap word for "thunderbolt"; we call the plane the Jack—Ed.) flew in the skies over the Philippines, your reporter instinctively headed for an air-raid shelter looking closely at the planes. As the planes drew nearer, I could see that it was our new type fighter plane which possessed a very firm and stout body, wings which stretched taut, and machine-guns of a certain caliber. Ah! This reporter has never seen a more splendid fighter plane!"

Der Blitz. It was July 31, 1944. Field Marshal von Kluge, German commander-in-chief on the Western front, picked up his telephone. He asked for the chief of staff in one of his army groups.

"The enemy has reached Avranches," he said. "Our 957th Infantry Regiment of the 363rd Infantry Division has apparently not moved owing to hitherto unprecedented enemy fighter-bomber activity. Enemy tank advances on Granville and Avranches were preceded by an umbrella of enemy fighter-bombers. This made movement almost impossible. The troops have suffered high losses in men and equipment by strong air activity and morale has greatly suffered."

Then von Kluge called the chief of staff of the German 7th Army and said:

"Yesterday's heavy fighting was successful for the enemy only because he paralyzed all our movements by employing fighter-bombers on an unprecedented scale."

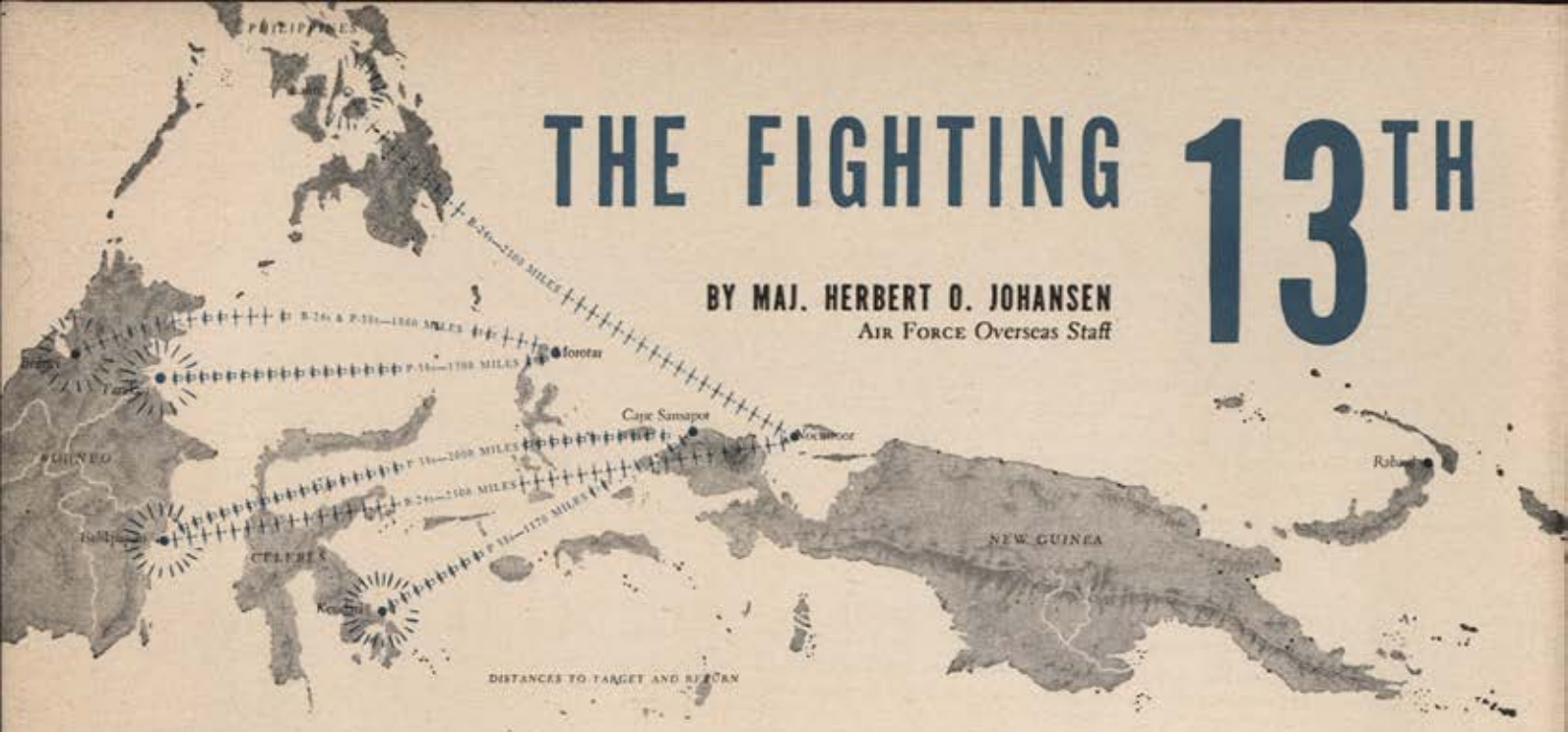
Field Marshal von Kluge made a third call—this one to General Warlimont, Hitler's personal representative in the west. He said:

"The enemy's air superiority is terrific and smothers almost every one of our movements. Every movement of the enemy, however, is prepared and protected by its air force. Losses in men and equipment are extraordinary."

These conversations were recorded in an enemy top secret telephone journal, which has been captured.

Brawl. The long-standing feud between the rival Jap parties, Kodo-ha and Tosei-ha (see "Family Argument," Page 12), frequently manifests itself in the form of barroom brawls. A typical "incident" was reported recently. It started when a major from Hikodan, or Air Brigade Headquarters, knocked over the table and knocked out a lieutenant. A couple of captains and a worker from the General Affairs Bureau (Somubu) joined in. A plain business man who, according to the Thought Police, didn't know exactly what was going on hit one of the captains over the head with a chair. And so it went until, as Tokyo press accounts pointed out, the principals "were removed from the scene." ☆

"The long-standing feud manifests itself in the form of barroom brawls..."



THE FIGHTING 13TH

BY MAJ. HERBERT O. JOHANSEN
AIR FORCE Overseas Staff

Lately the Jap has changed his mind about a lot of things so far as the air war in the Southwest Pacific is concerned.

He thought his strategic installations in the Celebes and China Seas were beyond the range and audacity of our bombers and fighters. The smouldering ruins of his Balikpapan and Tarakan oil centers quickly put him straight on that point.

He flaunted his heavily armed merchant vessels and warships under the very bomb bays of our B-24s, secure in the belief that heavies were unable to attack successfully from the necessary high altitude. That security received a staggering shock when direct hits were scored on the Yamato, his largest battleship, in a series of B-24 shipping strikes that sent other of his large merchant vessels and naval craft alike, to the bottom.

It took some irrefutable arguments on the part of the 13th Air Force to change his mind, but superior bombing technique, painstaking planning and daring initiative did the trick. Losses for us have been heavy at times, but these have been far outweighed by successes that have put the 13th ahead of the Jap schedule of expected attack, thus catching him with his defenses down.

Tarakan, Borneo, 318 miles north of Balikpapan, is an example of painless—for us—bombing. The 13th Air Force planning staff had long had its eyes on the rich oil facilities at Tarakan, which in some ways are unique. There is no refinery. The oil is simply separated from the water and transferred into storage tanks, from which it is pumped directly into waiting ships for bunker fuel. It was to be a knockout blow, which meant waiting until it could be hit with everything in the air force that could fly and carry bombs.

The day came on November 18. To the heavy bombers was assigned the huge separating plant. Two large storage tank farms were given to bomb-carrying P-38s. B-25s drew the shipping in Tarakan Harbor. The entire air armada was to be screened by a P-47 fighter cover.

From reconnaissance the 13th knew that the mission would catch the Jap unprepared. He was. There was no fighter interception and only light ground fire. Only one of our planes was lost—a fighter. The result: 24 hours later the installations were burning as if they had just been bombed. Forty-eight hours later recco reports said that they were still burning fiercely.

The only explanation of the lack of enemy opposition and interception at Tarakan, according to Brig. Gen. William A. Matheny, commanding general of the 13th Air Force Bomber Command, is that the Japs just did not believe we could or would strike there, especially after the heavy losses we had sustained at Balikpapan. Already the Jap has been given an excellent idea of the fate awaiting his other strategic targets in the area.

But before Tarakan came Balikpapan, which was a differ-

"Bomber Barons" attack airdrome on Negros Island as part of Leyte operation. Runways were blasted, 22 planes probably destroyed.

Balikpapan paraffin and oil refineries were smashed on Oct. 10, 1944, by 200 bombers that flew 2,400 miles in 16 hours with record load.

Thirteen is an unlucky number—for the Japs. The bombers of the 13th Air Force and their fighter escorts have smashed at enemy targets all the way from Rabaul to the Philippines

ent story. Balikpapan was the first strategic target to come within range of our Southwest Pacific bombers. It supplied from 15 to 30 percent of Japan's aviation fuel and, as a prelude to the Philippines campaign, it was essential that its production be halted for the time being.

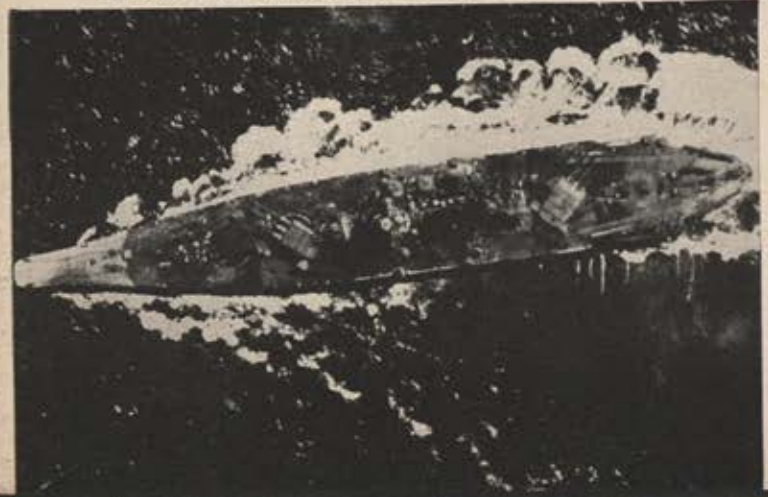
The 13th Air Force was used for long-range bomber missions without fighter escort. Strikes at Yap, Palau and Truk, ranging from 1,400 to 1,800 miles, had been routine, but Balikpapan was better than a 2,000-mile round trip. It was not only a matter of flying this unprecedented distance over water against one of the Jap's heaviest defended installations without fighter escort, there also was the problem of a night take-off for the largest number of heavy bombers ever assembled on a single airstrip in this theater. Col. Thomas Musgrave, commanding officer of the Bomber Barons, admitted frankly: "We were scared to death when we were told of the assignment."

A Balikpapan planning staff was organized. Among its problems was extending the range of the B-24 while at the same time increasing its load capacity.

As a first step, bomber command and group experts, working with factory technical representatives, arrived at the most desirable power settings for the engines to give the longest possible range at a minimum speed of 150 miles

Jap battlewagon of Kongo class churns sea in frantic effort to zigzag away from a B-24 attack that scored 2 direct hits, 10 near misses.

Yamato class battleship was caught in Sulu Sea by 13th AAF "Long Rangers." Battleship fired at B-24s from 10 miles with 17.3 inch guns but Libs came on to score one hit, 15 near misses inside 1,000 ft.



per hour. A new and more efficient schedule of gas transfer was evolved. The best flying altitude was determined. But above all, there was the challenge of making it possible for the B-24s to carry a load some 12,000 pounds in excess of the maximum capacity load for which it was designed.

This called for a delicate and constantly changing load adjustment schedule. Every item that was to go into the planes was weighed on scales. The weight chart gave exact built-in weight of the B-24. Next, using the weight and balance chart and considering bomb and gas load, the exact position for every minute of the projected 16-hour flight was figured for each crew member. Calculations even included each parachute, ration kit, and life raft.

As gas was consumed on the mission, each crew member and every inanimate object would change position within the plane according to a precise, predetermined plan. No variation was allowed. Flight tests were run with full loads. First in daytime then at night, simulated missions were flown to targets matching exactly the distance to Balikpapan. These gave actual time in the air and total fuel consumption. On these tests the planes returned with a minimum gas variation from the theoretical consumption of two gallons, a maximum of 80 gallons. In all cases actual consumption was less than the theoretical and the 13th Air Force knew that the Balikpapan mission could be flown successfully as far as range was concerned.

Then came midnight, September 30. All the figuring, sweating, training was to be put to the actual test. Nothing had been overlooked. Because of the long duration of the mission, the time of moonrise and moonset had to be calculated as well as sunrise and sunset; even the tides had to be figured for the benefit of crash boats standing by.

In spite of insufficient lighting, dispersed revetments and curved taxiways, the first 48 Liberators rolled down the runway with perfect timing and were airborne within 48 minutes. Each plane was timed on a sweep-second stop watch and given its starting signal by means of a green starting light. Due to the heavy loads and limited taxiways, mishaps had been anticipated, but crippled or wrecked planes couldn't be allowed to delay the schedule. Bulldozers were ready to shove the incapacitated planes out of the path of the next taxiing plane. Rescue squads, wreckers, bomb disposal crews stood by; during it all, the entire island base was put on condition green. Even an enemy air attack could not be allowed to interfere with the mission.

For 16 hours the entire 13th Air Force from the commanding general down to mess orderlies sweated out that mission. The distance, the heavy loads, strong enemy opposition against unescorted heavies, all added to make the suspense almost unbearable.

At the halfway mark came relief in the form of a radio message that the planes were over the target. They had dropped their bombs and were fighting their way back through heavy enemy fighter interception. Then at the end of an eternity the first plane came lumbering in. Reports were amplified with the information that the Balikpapan oil installations had been left in roaring flames with smoke seen rising to 18,000 feet. There were planes lost, others unreported, many crew members were wounded and others dead. But the main thing was the all-important message that could be radioed to higher headquarters: "Mission accomplished."

The mission was repeated a few days later, again without fighter escort. Enemy opposition over Balikpapan was even more intense and our losses were heavy. For the third and fourth strikes, long-range fighters were brought up to a forward base and escort furnished; our losses decreased.

To the escort units of the 13th under command of Brig. Gen. Earl W. Barnes, long-range fighter missions were no novelty. Round-trip fighter sweeps of 1,400 miles were routine. Just as the B-24s achieved longer range by more than just pouring in extra gas, so the extended range of the P-38s and other fighters necessitated more than mere addition of larger belly tanks. As in the B-24s, a precise power-setting for maximum performance at a set speed was evolved. A special flying techinque was necessary due to the heavy gas load which had a tendency to make the plane mush along. Pilots were instructed to maintain their planes at a certain altitude. This technique, called flying by altitude, enabled the fighters to be flown rather than pushed through the air, thus conserving sufficient gas to increase their range by hundreds of miles.

The payoff for the 13th fighters came in the middle of November when they escorted heavy bombers on a long range mission to Brunei, on the west coast of Borneo, for an attack on a large Jap naval task force. On this history-making mission, the fighters flew 950 statute miles each way, a total of 1,900 miles. It is true that some of them landed at home base with only a few drops of gas in their tanks, but they did come back.

Between long-range strikes at strategic targets, the Bomber Barons and other heavy bomber units of the 13th rolled up an impressive score of ship destruction from high and low altitude, depending on the size and firepower of the vessels under attack.

The Japs had not entirely misplaced their confidence when they shuttled back and forth in the security that our heavy bombers could not successfully attack their ships from high altitude. From 20,000 feet and up, hits on moving targets could not be guaranteed. With this knowledge and experience the 13th employed a technique for high altitude bombing of shipping at 9,000 feet. This put the attacking planes above the most effective range of 20 and 40 millimeter antiaircraft fire but not beyond the range of heavier guns. That was the risk that had to be taken.

The technique of bombing ships at 9,000 feet, General Matheny explains, is rugged, bloody and costly, but very effectual. At that altitude it is possible to spread sighting shots so that a hit is a virtual certainty.

In this type of bombing, approach to the target is made in a modified combat box formation. When six or seven miles away from the target, the squadrons break off in sequence at set intervals. The lead squadron bombardier sights for range and deflection and his wingmen drop on him. Lead bombardier of the second flight sights for range only, and his wingmen drop on him. This is standard procedure for each squadron. Results of this technique as employed by heavies of the 13th Air Force on many shipping strikes within the last few months have proved its deadliness. It gives a small enough unit formation to produce maximum maneuverability with the largest bomb pattern consistent with such maneuverability; it affords a more accurate method of sighting an evasive target; it allows maximum fire support within individual units, and its pattern is sufficiently large to compensate for errors in sightings and evasive action of target.

Closely following the sinking of a cruiser by means of this bombing technique by the Bomber Barons, their rivals, the Long Rangers, sighted a concentration of 12 Jap warships in the Sulu Sea. While still 10 miles away, they were amazed to find themselves the target of fire from the heavy guns of one of the ships. The ack-ack became heavier as they neared the target. The B-24s didn't waver. They made their run and dropped their bombs despite the most violent evasive action taken by every ship. On one task force the heavies scored hits on the two large battleships and sank and damaged several smaller ships.

(*Continued on Page 60*)

SITUATION NORMAL...

ILLUSTRATED BY T/SGT. DON BROCKELL

BY LT. BERT STILES

339th Fighter Group, 8th Air Force

Ever wondered what it's like to ride a Mustang to Munich and back? Well, it's a lot like this...

The overcast was five miles or ten miles thick, and it started at the ground. So the bombers didn't go.

We were supposed to shoot up a certain railroad siding down near Munich where there were supposed to be oil cars.

There was much mud on the field, and much on my windshield before I got off the ground. The visibility was lousy. We almost ran into a Stirling.

The clouds broke up when we hit the coast and we went up. There were strings of 51s and 47s in back of us and on the sides and probably up ahead.

The relay station came in with, "There are bandits operating in the Cologne area." All bandits are in the Luftwaffe.

There was a high overcast at maybe 22,000 and no low clouds. The ground looked peaceful, but it probably wasn't. We flew over the line somewhere just south of Aachen.

Somebody called in two planes up at two o'clock high.

Somebody else called in four planes at two-thirty high.

I saw them.

They were coming right for us. I flicked up all the switches and got ready to drop my tanks and turn into them shooting.

In two seconds, I'll break, I decided. I shook with anticipation. I guess it was that.

"Little fat friends," somebody sang out.

"They're Jugs," somebody else said in a relieved voice. P-47s, he meant.

They swung off maybe a mile out, showing that big slice-of-orange wing and went off to look for something else.

There was sweat on my hands and sweat on my legs and everywhere else.

We were fanned out in battle formation. We were looking around. We were ready for the Luftwaffe.

"Bogies at nine o'clock," somebody called in. Bogies are unknowns.

Somebody else called them a little louder.

"They're 109s."

I flicked the switches on again. There was a bunch of planes up high at nine o'clock.

"Drop tanks in 15 seconds, White flight." That was us. I let mine go in about three and was tied for last.

We went into a screaming turn to the right. I jacked up the rpm's to the firewall and gave it full throttle.

There were 51s all over the sky in a big swirl.

I kept swiveling around. 51s on my tail. 51s at every hour on the clock.

"We turned the wrong way," somebody said.

They were at three o'clock, not nine.

Twenty or forty of them slid through. Green flight climbed on the tail-end man. He climbed up. They outclimbed him. He did a half-roll. They watched. He went into a shallow turning dive, and the one and three man pulled up his tail and clobbered the hell out of him. (I got all this later).

"He bailed out," somebody yelled.

"Eeeeeeeeyow!!!!!!"

Our flight did five or ten more turns and saw lots of 51s.

"We'll go down here," Red leader called in. "We haven't got enough gas to go all the way."

So we started down and we started looking. We flew over some hills and some trees and some towns and some railroads and we finally saw a town and a railroad in some hills that must have pleased Red leader.

And we went down. We went down in a woozy spiral, and we strung out. We clipped in over the spruce tops doing 400.

I was flying on my element leader. I went where he went. Once we went almost the same place. I slid under his tail, and over the top of a church steeple with 12 inches to spare.

It was Germany and it was pretty and peaceful and we didn't see anything to shoot.

We skimmed over a hill and there was a train. We didn't shoot it either, because we were already past.

We racked into a 90-degree bank and got into string and went back around. Everybody was there. I lined up on a hunk of train and flicked on my gun switch . . . then I kicked into a turn and jerked back on the stick when a 51 moved in, in front of me.

When I grabbed the stick I grabbed the trigger too. The 51 didn't get it, for some reason, but a big old two-story house did. The top story got a burst of tracers and then we were past again.

We went round and round. There were enough 51s to shoot up ten towns that size. Somebody got the engines on the first pass. There were two trains and we shot the hell out of them.

There was an oil tank, I guess. It had black smoke and it burned nice. Several other things burned and blew up.

Then somebody went in. The whole works blew when he first hit the ground, and the engine went shooting up over a little hill into the trees.

There were two kids and a bike out in the middle of a street watching. Some people somewhere were shooting flak at us.

I saved one burst till I was really down on the train and saw somebody else had already burned out that car. I horsed back and made it over the hill with an inch or two to spare and went into my turn.

There was a guy down there about ten feet off the end of my wing, shooting a double-barreled shotgun at my element leader. He didn't give a damn. When we came back he was gone, prudently.

Then everybody was gone. I was all alone in the haze dusting over hill tops, looking for somebody, looking for anybody.

Then I saw a ship.

"This is Red leader, I'm going up," came over the radio.

There was a guy going up, so I went up too. Then there was another guy.

I checked my tail and there were two jokers right on it. I broke left.

Little friends.

We went up. We went way up and everybody joined in.

"Where's White four?" came over the radio.

"I think he got it back there in the town." There was sorrow in the voice.

"I'm up here in Red flight," I said happily.

I cut my throttle back and put down flaps and faded back to White four position.

I flew in close and thumbed my nose at the element leader.

So we flew home. And nothing else happened to us. But plenty was going on. Everybody else was still down there talking loud and incoherently, jamming up the radio.

"Don't shoot me, I'm your leader," somebody else said.

"TS" somebody consoled him.

"I'm out of oil," the same guy said. "I'm out of everything."

We waited.

"I'm OK," he said a minute later. "I'll make it OK."

We relaxed. He bailed out ten seconds later, maybe in Germany, maybe in France.

"Look at them barrage balloons."

"The lousy bastards . . ."

There was no telling what was going on. Somebody hit something, somebody got hit.

"I'm hit." Chaos on the radio.

"You got him."

"EEEEEEEowowow!"

"Attababy."

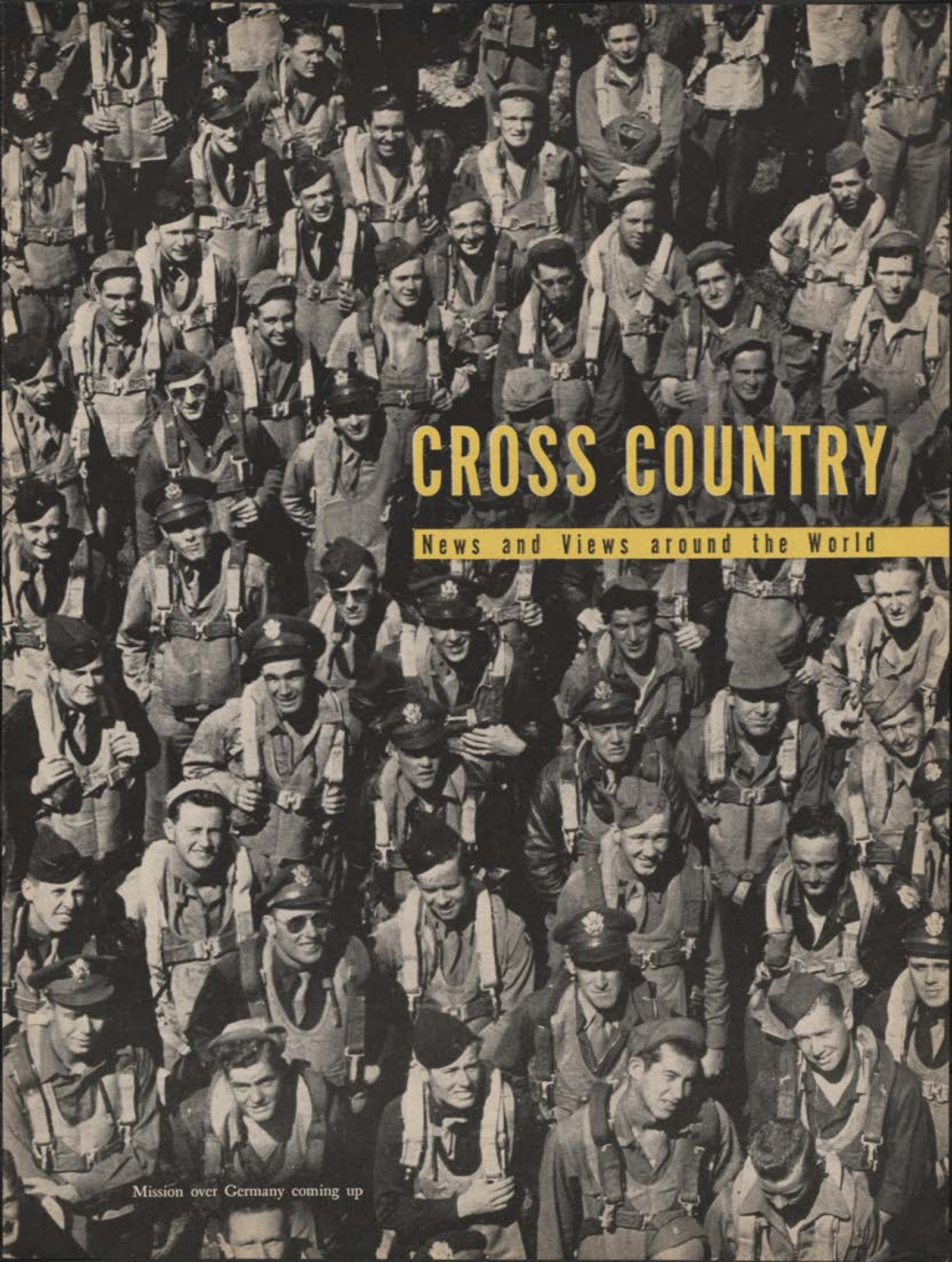
France was pretty. We let down to get under the front of clouds coming up. I did three rolls going down.

Four hundred thousand men were moving up along a line from the Dutch Coast to Switzerland. A couple of trains were lying back there, dead and smashed. A little village was shot up and scared and still there.

I sat still, then I did another roll, than I looked down at the soft green world. There wasn't any sense to it all.

This is war, I thought. This is war in the air. ☆

"... shooting a double-barreled shotgun at my element leader."



CROSS COUNTRY

News and Views around the World

Mission over Germany coming up

Pioneers of the 'Double-X'

When the roar of B-29s over Japan reaches its climax, the first six months of operations by the 20th Bomber Command from bases in India and China will be little more than a memory.

But every B-29 crew of the future will owe a major share of its success to the men of the "Double-X" who opened up the road to Japan by proving the combat worth of the previously untried bomber and discovering how it could be flown most effectively and economically. Bare figures on the 20th's operations for the first half-year aren't very startling: 20 missions against enemy targets from Bangkok to Kyushu; 148 Jap fighters destroyed, 77 probably destroyed and 126 damaged; 22 B-29s lost to enemy flak and fighters.

A camel for every crossing of the Hump

The 20th's Captain Ledford at a China hospital

Lessons learned, techniques developed and initiative and courage displayed, however, are not reflected by mere statistics. Figures don't describe the hundreds of thousands of Chinese coolies and Indian laborers building airfields in China literally with their bare hands. They don't tell of the Superforts which, in the early days, were stripped down and used as flying tankers to haul enough gasoline over the Hump for the 20th to carry out assigned bombing missions. Some of the planes have as many as 50 camels painted on their noses, each indicating a round trip over the Himalayas.

Nor does a mathematical compilation make any mention of the valor of the B-29 men, of men like Capt. Jack Ledford, pilot of the "Heavenly Body." Returning from an attack on Omura, Ledford and his flight engineer, M/Sgt. Harry C. Miller, were wounded by machine gun bullets. The pilot's right hip was fractured and the flesh laid open, exposing his hip bone, backbone and kidneys. Miller was hit in the head and knocked unconscious.

Refusing medical aid until Miller had been treated, Ledford turned the controls over to his copilot and handled the engineer's instruments for 45 minutes until he could no longer continue for loss of blood.

Gasoline shortage caused two engines to fail, enemy bullets apparently having punctured the fuel lines, and, when the plane reached unoccupied territory, Ledford ordered the crew to bail out for it was obvious the Superfort could not reach a landing field.

At the pilot's direction, the shroud lines of an extra parachute were cut off and attached to the leg of the navigator's table and to the unconscious engineer's parachute ripcord ring. Thus, Miller's chute was opened automatically when he was dropped through the nosewheel well.

Bailing out a few seconds later, Ledford deliberately delayed opening his parachute until he had fallen 5,000 feet so that he would be able to land near his helpless crewmate. His heroism was in vain, however, for Miller died in a Chinese hospital without regaining consciousness.

Then there was the time that "The Pioneer" lost an engine and turned for home. To lighten the plane, the rear bomb bay was opened to dislodge an auxiliary fuel tank. But the tank was caught and hung half off its shackles, banging against the bomb bay doors and causing a drag which pulled the plane toward the water.

S/Sgts. Gerald K. Tefft and James W. Carr seized fire hatchets and crawled into the bomb bay. Unable to wear parachutes because of the cramped space and working in total darkness with wind and rain swirling about them, the men were in constant danger of being caught in the loose tank's swinging cradle harness. But they hacked and hacked for 15 minutes until finally, with the plane only 700 feet above the water, the tank fell free.

Instances of masterly pilotage were numerous in those first six combat months for the 20th. The "Raidin' Maiden" ran out of gasoline returning from Singapore—10 miles short of home and 10,000 feet in the air. Capt. Charles Joyce, the pilot, signalled his crew to bail out and four men jumped. But unknown to Joyce, the alarm bell in the rear of the ship failed to ring and the gunners remained aboard, waiting for the signal. Fortunately for the gunners, the pilot decided to save the plane rather than leap for safety himself, and the engineer elected to stay with him. Joyce made a perfect landing, in the clear, only 40 yards short of the home runway. Several hundred mechanics and other ground personnel, who had watched in anxious silence, cheered wildly as the "Raidin' Maiden" coasted down the concrete strip.

B-29 men know it's a notable feat to land one of the bombers with fewer than three propellers working. But with the landing gear of the "Windy City" shot out of commission, three engines dead and the fourth propeller turning at only half-speed, Maj. Gust Askounis brought the plane in for a neat belly landing after an attack on Yawata on August 20.

Successful operation of a big bomber, however, depends more often upon teamwork than upon individual action, and the accounts of heroism among the 20th's personnel usually are concerned with an entire crew rather than one person. The conduct of the crew of the "Last Resort" during one of the missions against Omura, Japan, provides a typical example.

Making its bomb run on the target, the "Last Resort" was intercepted by 20 Jap fighters which, within a short time, knocked out three of the B-29's engines and most of its instruments, punctured its fuel tanks, and forced it to drop out of formation.

As the enemy planes closed in for the

kill, Maj. Donald W. Roberts, the pilot, turned over the controls to the copilot, Lt. John C. Harvell, and went to work assisting the engineer, F/O Elmo W. Gray. Together they got a second engine going.

Manned by Lt. Harold W. Dickerson, S/Sgts. Irving W. Smith and Jack I. Mueller and Sgts. Rolland W. Geisler and Everett J. Nygard, guns of the "Last Resort" destroyed three Jap fighters and sent two others disappearing into the clouds, leaving trails of smoke behind them.

Despite the loss of many instruments, Lt. Raphael W. Ford, navigator, safely guided the "Last Resort" to an emergency landing field in China. Using baling wire, friction tape and some odd spare parts obtained from the Chinese, the crew patched up the plane and flew it home the next day.

Such are the qualities displayed by the men and planes of the 20th during its first months of combat—qualities which will insure the ultimate success of our air campaign against Japan.

(For the basic information contained in the foregoing item AIR FORCE is indebted to Lt. M. Mortimer Kreeger of the 20th Bomber Command.—Ed.)

Story of a Bomber Pilot

The control cables of the B-17 were shredded beyond repair, the automatic pilot equipment was shot away, and the pilot was fighting to keep the crippled bomber from going in. Contact was made with the control tower of the bomber's base across the Channel in Britain.

Control: "See if you can head the Fort out to sea."

Pilot: "It's all I can do to keep it going. We tried to tie the control cables together to save the plane, but it's no go."

Control: "Use your own discretion."

Pilot: "We will try to turn around and head out to sea. We have no bombs."

Control: "Keep in touch with us."

Pilot, moments later: "We are ready to bail out. If I don't make it, good luck to you."

Control: "I won't need the luck—good luck to you."

First Lt. Loye J. Lauraine held the bomber level long enough for his crew to bail out but he was unable to get out himself. The Fort crashed with its pilot from 9,000 feet.

Continental Air Forces

Headquarters, Continental Air Forces has been activated at Camp Springs (Md.) Army Air Field, near Washington, D. C., to decentralize command functions over the four air forces based in the United States and the I Troop Carrier Command, and to place the operating functions of AAF Headquarters in the field.

Among the specific responsibilities of the CAF will be the air defense of the United States, the organization, reorganization and training of service and combat personnel, the preparation of units and crews for deployment overseas, and joint air-ground training.

During the early stages of its activation,

QUESTIONS
on Policy and Procedure

Q. May an officer or enlisted man reassigned after returning from overseas or transferred from one air force to another air force or a command continue to wear the shoulder sleeve insigne of the organization to which he was assigned previously?
A. *No. Personnel may wear only the insigne of their present organization. All except those assigned to a numbered air force must use the AAF patch (star and wings on blue disc). Nor may the insigne of previous assignment be worn on the right shoulder, regulations stating clearly that only one patch — that on the left shoulder—is permitted (AAF Ltr. 35-176, 4 January 1945).*

Q. If a transient officer pays a room fee while stopping at a base, may he certify that he did not occupy Government quarters in collecting per diem?
A. *No. An officer on per diem allowance will not certify that he did not occupy Government quarters solely because in connection with occupancy he was required to pay incidental room fees. Any expense so incurred will be considered as a steward attendance fee and not as the cost of the quarters themselves (Sec. I, WD Cir. 433, 1944).*

Q. In computing flying time, when does the flight officially begin and end?
A. *Flying time starts when the aircraft begins to move forward on the take-off run and ends when the aircraft, after flight, is taxied to a position on the ground where the engine or engines are stopped or any change in the aircraft crew is made. Flying time, however, ceases when the engine or engines are allowed to idle while the aircraft is stationary for a period in excess of a total of five minutes during such taxiing as may be required to complete one flight (AAF Reg. 15-5, 1 July 1943, as amended by AAF Reg. 15-5A, 3 October 1944, which supersedes AAF Reg. 15-5B, 6 May 1944, cited in Direct Hits, AIR FORCE, December, 1944).*

Q. Should the person designated as the emergency addressee of a soldier stationed outside the continental limits of the U. S. notify the War Department of a change in address?
A. *Yes. Unnecessary delay in transmitting casualty information to an emergency addressee often is caused by the addressee's failure to advise the War Department of a change in address. Military personnel stationed outside the continental U. S. should direct their emergency addressees to notify the Adjutant General, Washington 25, D. C., att.: Casualty Branch, as soon as any temporary or permanent change in address is made (Sec. III, WD Cir. 447, 1944).*

Q. Under Public Law 790, gifts sent by military personnel stationed outside the U. S. to persons in the U. S. are duty-free to the extent of $50 in any one shipment. Does the law limit the number of such duty-free shipments which can be made?
A. *No (Sec. II, Par. 4, WD Cir. 436, 1944).*

Q. What precautions should be taken in the storage of compressed gas cylinders?
A. *Compressed gas cylinders may be placed in open or closed storage, but they must be protected from dampness and against excessive rise in temperature from the direct rays of the sun or other source of heat. They will not be stored near highly inflammable substances nor in places where they may be struck by moving objects. Oxygen will be separated from inflammable gases or material and empty cylinders will be segregated. Good ventilation will be provided to carry off leakage or inflammable gases. Chlorine and acetylene gas cylinders will be stored upright and ammonia cylinders will be placed on their sides (Ch. 2, Par. 9, AR 850-60, 10 November 1944).*

Q. May enlisted men be held financially responsible for the loss or destruction of spectacles or dentures issued to them by the government?
A. *The Judge Advocate General has ruled that enlisted men may not be held financially responsible for loss of these items. Destruction or loss through design or willful negligence, however, violates the 96th Article of War (JAG Bulletin, Vol. III, No. 3, March, 1944).*

Q. What directive limits the information which may be placed in a Service Record?
A. *TM 12-230. Items of information or attachments not listed in this manual will not be made a part of the Service Record without approval of the War Department.*

PREPARED BY THE OFFICE OF THE AIR INSPECTOR

"Eighteen months in grade and I have to be transferred to an outfit like this!"

the CAF headquarters staff has been manned by AAF Headquarters personnel, with Brig. Gen. Eugene H. Beebe, formerly the senior American air officer on Lord Louis Mountbatten's staff, serving as acting commanding general. Approximately 3,000 officers and men are to be assigned to his command.

Higher-level policies and plans remain a function of AAF Headquarters.

Blunting Von Rundstedt's Nose

Lt. Gen. Carl Spaatz and his top-ranking strategic and tactical commanders paused briefly at Supreme Headquarters shortly after New Year's Day for a hurried appraisal of the air war. With the front lines completely weathered in, General Spaatz and his staff reasoned that this was as good a time as any to take quick inventory of the greatest winter aerial offensive in history—three weeks of violent air combat that had seen AAF and RAF bombers and fighters churn by the thousands through some of Europe's foulest weather to help stem Von Rundstedt's advance through Luxembourg and Belgium.

Shuffling through his reports, General Spaatz compressed the furious action of the past three weeks into cold but impressive statistics. Number of sorties flown by American aircraft since the start of the German counter-drive on December 16: 38,800; tonnage of bombs dropped: 35,500. Destroyed were thousands of tanks, railroad cars, locomotives, gun positions, bridges and fortified buildings. A revitalized Luftwaffe, rising in its first major offensive since the Battle of Britain, had been beaten back. The effort had cost the German air force 921 planes.

Such was the contribution of the 8th and 9th Air Forces and the 12th Tactical Air Command to the Allied armies facing Von Rundstedt's assault. It was sufficient to help turn the tide. As in North Africa and in Normandy, most of our available airpower had been thrown into a vast tactical operation over the battlefield and the scales had been tipped in favor of the ground forces. In the words of General Spaatz his flyers "had done their share in one of the great battles of history."

There were the pilots and crews of the 8th. They were eager. They took off for the Continent through fog that sometimes limited visibility to eight yards. Often it was so cold that one inch of ice coated the propellers. The East Anglian frost made skating rinks out of the runways but the bombers went up anyway — more heavily loaded than usual — and found their way to the front.

There were the fighter pilots both in England and on the Continent. The spirit at the fighter bases was reminiscent of D-day and Normandy. Fighters of all units played an important role in tactical cooperation with the ground forces. This is no reflection on the medium bombers which also were in the forefront of the counter-attack whenever the weather permitted them to get off the ground.

Weather in Europe at this time of the year can be divided into two kinds—bad and worse. Von Rundstedt started his thrust under cover of cloud and rain, and for the first week he had the weather with him. Conditions were so much in the enemy's favor, according to our staff correspondent on the Western Front, that General Patton sent a Christmas card to members of his command on which was inscribed a prayer for good weather.

Shortly before Christmas the weather broke—for six crucial days. In the official records, this answer to General Patton's prayers is recorded as "the period of divine intervention."

On December 24, the 8th threw 2,200 heavies and 1,300 long range fighters into the tactical battle. With the 9th AF and 12th TAC, they raked and blasted practically every inch of the battle zone. When the weather asserted itself again after Christmas, our aircraft just kept on flying. The 8th operated on 12 straight days, a new record for winter operations.

The payoff came when our armies started overrunning Nazi tanks that were out of gas and capturing enemy soldiers who had not been fed for four or five days. At the turn of the New Year, the Luftwaffe desperately adopted our tactics. They came over in strength to shoot up our airfields. They did some damage but they lost more than 200 planes in these raids.

A few days later, General Spaatz expressed confidence that our offensive airpower is stronger than ever. In the near future, he predicted, the 8th would mount bombing missions numbering more than 3,000 heavies.

Aerial Evacuation

More than 700,000 sick and wounded men of American and other Allied forces have been evacuated by the AAF from battle areas since August, 1942, according to recent figures compiled by the Office of the Air Surgeon. More than 525,000, or 75 percent of the total, were evacuated in 1944 from European fronts, with the 9th and 12th Air Forces transporting the majority of the evacuees. Despite the large number of critically wounded men evacuated from France, Italy, Burma and the Central Pacific, the death rate has been very low—7 per 100,000 patients-trips. The number of patients evacuated by Air Transport Command from the theaters to the United States increased from 3,000 in 1943 to 30,000 in 1944.

Salvage of a B-29

Running low on fuel, a B-29 pilot set down his plane on an emergency strip in the CBI. Uncertain whether he was inside or outside the Japanese lines, he directed the crew to man all guns as he taxied down the runway. His plan was to run the length of the strip and then swing around, so that

if ground troops attacked he could take off and fly as far toward friendly territory as his gasoline supply would allow.

Half-way down the dirt strip the Superfort hit a soft spot and the wheels sank into mud. Although it was determined that the field was in friendly territory, 20 miles from enemy lines, there appeared to be scant chance of salvaging the plane because of lack of fuel, tools, maintenance personnel and protection.

But after a representative of the Air Inspector's office visited the scene and sent recommendations and estimates back to headquarters, an epic task was performed. Chinese workers hauled in 4,500 railroad ties for repairing and lengthening the runway. Personnel adequate to tackle the maintenance job were flown in, together with supplies, including 182 drums of gasoline.

The project was rushed to completion despite intermittent rain and the added hindrance of Jap fighter attacks. AAF fighter patrols, protecting the field, shot down 30 enemy planes. And 13 days from the time the emergency landing was made, the big bomber took off and was successfully flown to safety.

Strategic Bombing Study

A civilian commission has been established by War Department order to move into Germany when military operations cease and appraise the effectiveness of strategic bombing on German industry. Work of the commission will be in addition to the surveys already begun by military observers in France, which will continue as Allied forces advance through the Reich. The commission is headed by Franklin D'Olier, industrialist and insurance executive.

New Bombing Tables

Air Ordnance has prepared new bombing tables, which are being published in a convenient 5½ by 8½-inch book designed for quick reference and ease of handling in a bombardier's compartment.

With a completely new format, the publication provides tables for each 100 feet of altitude. Additional information in the book includes special dropping angle tables for low altitudes, fictitious disc speeds when required, release lag tables for combination loadings and climb and glide data. All printing is luminous, to permit full use of the book at night. Copies are being distributed through regular channels by ATSC.

Air Crossroads

Tucked away in the green lowlands of Scotland is an international crossroads—an Air Transport Command station which is a terminal for most of the sky traffic between the United States and Europe.

It is a tremendous installation; you could spot half a dozen of America's biggest railroad terminals on the field and they'd hardly be noticed among the multitude of runways and dispersal and storage areas.

Hundreds of planes land there weekly and as many take off for the westbound run. For the past 18 months, a fleet of silvery

PLANE BONERS

Analyzed by Veteran Pilots

ENGLAND—A B-24 pilot was directed after landing to make a 180-degree turn and taxi back to a parking area. As he swung the plane around, the nosewheel and the right mainwheel ran off the strip. Attempting to force the wheels back on the runway, the pilot braked the wheels and applied power to the No. 3 and No. 4 engines, but the action was too severe and the nosewheel gear was sheared off as it struck the pavement.

Comment: Guilty first of faulty technique, which resulted in the wheels' leaving the runway, the pilot then showed poor judgment in trying to force the wheels from the soft ground. The sensible procedure would have been to have a tug pull the plane back on the strip.

TAMPA, FLA.—Cruising on a reconnaissance mission at 300 mph indicated airspeed, 40 inches manifold pressure and 2500 rpm, a P-51 pilot found his fuel was getting low. Although he reduced his power setting twice, he ran out of gas and was forced to land in an open field with resultant serious damage to the plane.

Comment: Recommended power settings are carefully determined. By drawing excess power, this pilot invited dry tanks.

GULFPORT, MISS.—As a B-17 entered the traffic pattern, its pilot ran through his checklist. He had just ordered the landing-gear lowered when the tower directed him to go around again. Calling for "flaps up," he circled once more, unaware that his copilot had retracted the wheels also. On the second approach, the pilot neglected to consult the checklist, the copilot failed to lower the gear and the plane landed "wheels up," with major damage resulting.

Comment: There was no excuse for this crack-up. Checklists are neither to be ignored nor lightly regarded. Furthermore, the error in landing-gear procedure would have been caught by a visual examination, which should have been made as an added precaution.

ENGLAND—Taking off, the pilot of a B-17G noticed halfway down the runway that no airspeed was indicated. He throttled back, but by that time the plane had gained so much speed it could not be stopped before the runway's end was reached and the bomber nosed over in the mud.

Comment: Investigation following the crash revealed the airspeed indicator had not functioned because the pitot tube covers had not been removed. Although this operation is the responsibility of the crew chief, the pilot is required to check to see that it has been performed.

NAVASOTA, TEXAS—After completing a low-level navigation mission, an AT-6 pilot reported that during the flight he had felt his plane hit something. Since he figured he was flying at 450 feet, he assumed he had struck a bird. He said he was uncertain, however, because he had been looking at maps when the impact occurred. The prop, cowling and radio mast were damaged, indicating the plane had gone through a wire.

Comment: A fine altitude at which to study maps!

MITCHEL FIELD, N. Y.—About to ferry a B-25 to Greenville (Miss.) Army Air Field, a pilot ran through his checklist from memory and then began his take-off run. At an indicated airspeed of 90 mph, he tried to retract the nosewheel but couldn't budge it. Cutting power, he attempted to stop the plane but it ran off the runway and through a couple of fences.

Comment: If the take-off check had been completed properly, the pilot would have discovered that the automatic pilot was in operation and that its directional gyro and flight indicator were caged.

HILLSBOROUGH ARMY AIR FIELD, FLA.—Coming in for a landing, a P-51C bounced high in the air when its wheels hit the runway. The pilot attempted to make a three-point recovery but, discovering that the plane was drifting away from the strip, he decided to go around again. When he advanced the throttle, however, the left wing dug into the runway. The pilot was uninjured but the Mustang was wrecked.

Comment: The pilot's decision to go around again was a sound one. But he used poor judgment in applying power so suddenly that torque threw his wing into the ground. He should have considered that torque is particularly strong in a high-performance, single-engine fighter.

BARTOW, FLA.—During short field landing practice, a P-51 pilot realized he was likely to undershoot the strip. Trying to apply power and drag the plane in, he shoved the throttle forward but the engine only coughed and the Mustang crashed before reaching the runway. The pilot was injured slightly and the plane was demolished.

Comment: Aside from his error in undershooting, this pilot should have cleared his engine on approach. Quick response when power is applied often is the difference between life and death.

PREPARED BY THE OFFICE OF FLYING SAFETY.

NEW BOOKS
On Aviation Subjects

AT WAR

COMBAT IN THE AIR. *Maude O. Walters.* A collection of factual war narratives. APPLETON-CENTURY, N. Y.

FLIGHT TO EVERYWHERE. *Ivan Dmitri.* A photographic tribute to the Air Transport Command in both color and black and white. WHITTLESEY HOUSE, N. Y.

PRELUDE TO INVASION. *Henry L. Stimson.* Briefed official reports of the Secretary of War from December 11, 1941, to June 8, 1944. Many of them cover AAF combat activities. PUBLIC AFFAIRS PRESS, WASHINGTON.

THE AIR FORCES READER, Army and Navy Air Forces. *Norman Carlisle.* Extensive material on today's air combat elements. BOBBS-MERRILL, INDIANAPOLIS.

WAR IN MAPS, an Atlas of the New York Times Maps. *Francis Brown.* Third edition. OXFORD, N. Y.

HISTORY

FIGHTING WINGS, a Pictorial History of Aerial Combat in World Wars I and II. *Gilbert Paust* and *Milton Lancelot.* A survey of military aircraft development. DUELL, SLOAN AND PEARCE, N. Y.

TECHNICAL

AERODYNAMICS. *Leslie R. Parkinson.* Elementary flight theory with particular emphasis on high altitude operations. MACMILLAN, N. Y.

DESCRIPTIVE METEOROLOGY. *Hurd C. Willett.* The subject presented at college level. ACADEMIC PRESS, N. Y.

ELEMENTS OF ASTRONOMY. *Edward A. Fath.* Fourth edition. A standard textbook for students. MC GRAW-HILL, N. Y.

INSTRUMENT FLYING AND RADIO NAVIGATION. *Holland L. Redfield.* Simplified exposition of the basic elements involved in blind flight. RONALD, N. Y.

NAUTICAL MATHEMATICS AND MARINE NAVIGATION. *Sydney Walling* and *others.* Navigational computation methods. MACMILLAN, N. Y.

ROCKET RESEARCH, History and Handbook. *Constantin P. Lent.* A survey of the development and potentialities of rockets. PEN-INK PUBLISHING CO., N. Y.

POST-WAR

AN EDUCATIONAL GUIDE IN AIR TRANSPORTATION. *Ralph E. Hinkel* and *Leo Baron.* A collection of commercial aviation job description sheets outlining requirements and duties. TRANSCONTINENTAL AND WESTERN AIR, INC., KANSAS CITY, MO.

CIVIL AVIATION AND PEACE. *J. Parker Van Zandt.* A discussion of current proposals for future control of commercial aviation. BROOKINGS INSTITUTION, WASHINGTON.

These books are available to AAF personnel through the AAF Field Technical Library Service, which provides for technical libraries at all major installations. List compiled by the AAF headquarters library.

C-54s has been shuttling back and forth over the North Atlantic with clocklike regularity. The accident rate is negligible, the time of departure and arrival predictable within minutes.

During the same period more than 10,000 tactical aircraft, ready to take their place in the battle for Europe, have been ferried over the same route by the ATC.

Freight of vital importance moves swiftly through the Priorities and Traffic Office barely 18 hours after leaving New York. There are parts for planes or weapons, vital medical items, pieces of tactical equipment, supplies for guerrilla armies, propaganda leaflets to be dropped over enemy territory, luggage and bags of mail.

The huge station is the port of air evacuation to the States for the men wounded on the Continent. Many hundreds of specially-fitted transports have made this mercy trip.

Routine is the byword around the field. A trans-Atlantic plane attracts about as much notice as a British accent. After all, no one can get very excited about something that happens every few minutes. Perhaps the only eyes that watch an approaching or departing plane are those of a ground crew and the men in the control tower.

If you stand around the main passenger lounge long enough, you'll probably see any number of persons in the news headlines—ranking military men, cabinet members, diplomats and royalty. In the passenger dining room, you may be seated at a table with a couple of RAF men, a Polish charge d'affaires, a Bombay steamship line executive or some minor monarch from the Near East.

If the AAF has a Grand Central Station, this is it.

B-29 Transition Training

Transition instruction of airmen pointing for combat assignments as pilots or flight engineers of B-29s is now a function of the Training Command. Formerly it had been the responsibility of the 2nd Air Force.

The new program already is underway at Maxwell Field, Ala., in a four-engine school which previously gave graduate pilots transition training in B-24s. A school at Roswell Army Air Field, N.M., will be converted to B-29 training in mid-February and a third will be established at Randolph Field, Texas, in late spring.

Air Traffic Cops

The top of a tree in India, a wood platform with bamboo supports on Morotai, a thatched hut on Kwajalein, a peasant's cart on an airfield in France—these are "towers" from which AAF traffic controllers conduct their daily business.

As soon as a new field goes into action, the controller usually scrambles to the top of the highest elevation he can find that will hold him and his blinker light. The first control tower on Makin was a 50-foot palm tree that had been stripped of its branches and equipped with a tiny platform, just big enough to hold one man. There was a traffic controller at an airfield in North Africa who operated from a little house fashioned from packing boxes and mounted on 32 oil drums, arranged on two levels; a controller on New Guinea actually had his control "tower" in a trench.

Mobile control tower in England

When the traffic at an airfield becomes very heavy, the tower operator is often assisted by other traffic controllers who roam the flight line in mobile control units. Some airfields in France are using jeeps outfitted with transmitting equipment as mobile units, and vans with plexiglas blisters on their roofs (see cut and front cover) are used on some airfields in England to help handle a part of the heaviest air traffic concentration in the world.

The Mildew Campaign

Men who fly in the tropics or sub-tropics and are bothered by the musty odor of

mildew in their oxygen masks are advised by the Air Surgeon of a solution which acts as both a fungicide and deodorant. It is a mixture of one percent thymol in 70 percent ethyl alcohol. The mask should be scrubbed clean with brush and pure water, dried and then swabbed thoroughly with the thymol solution. After the mask is aired for half an hour, it is ready for use. The mixture imparts a clean, mild odor which lasts five or six hours.

Underground in Italy

The Italians used the caves as wine cellars. Then along came the Germans who found the caverns ideal for stabling horses and prisoners of war.

So when members of the 2nd Bombardment Group of the 15th Air Force moved to the vicinity and decided to use the caves as a recreation center, they were faced with the unpleasant task of removing debris and filth by the ton and executing a deodorizing campaign on a grand scale.

It took two months of spare-time labor to put the caves in shape but the results were worth the effort. The caverns now contain:

A theater which will hold an audience of 750. The auditorium was ventilated by blasting through 25 feet of rock. Cpl. Charles S. Ford, II, former Hollywood cameraman, puts on four movies and one complete stage show a week.

A gymnasium with handball courts, a boxing ring, basketball court and ping pong tables.

An excellent chapel. Maj. Ira B. Allen, chaplain of the bomb group, was one of the first to examine the caves and discover their potentialities.

A small broadcasting studio, offering daily musical programs, news and pertinent orders of the day through a public address system which reaches not only the "cave-dwellers" but every messhall, orderly room and squadron club at the nearby base.

The "Fortress Institute," which is nothing short of a small college. Under the direction of Cpl. Edmond B. White, an instructor in chemistry back in the States, the "institute" offers 15 different courses, including languages, meteorology, psychology and even art and bookkeeping.

A GI night club, complete with bar, stage, dance floor, and fancy tables and chairs made from bomb packing cases.

And what could be a better name for the establishment than "Rocky Fella Center" (the "y"-hating sign painter notwithstanding—see photo)? Sgt. Phil Reidy came up with that one and it stuck.

Busy as 'L' Aircraft

Recent official definition given the duties of liaison pilots reflects the all-round ability that the "little planes" and their pilots have displayed in every combat theater (see "Little Planes with a Big Punch," AIR FORCE, October, 1944).

Apart from miscellaneous missions "consistent with the limitations of liaison aircraft," AAF Regulation 35-27 (29 November 1944) points out, these flyers undertake artillery adjustment, reconnaissance and light photographic missions, troop and light cargo transport, aerial evacuation, column control, camouflage checking and wire-laying for communications. And when they aren't busy at something else, they act in courier, utility and ferry capacities.

Staff Course Terminated

The AAF Staff Officers course will be discontinued in February when the current class completes its training. Established in July, 1943, for the purpose of training superior young staff officers, the course has been completed by more than 600 students of the Command and General Staff School, Fort Leavenworth. In addition, they have received instruction at Wright and Patterson Fields, Navy installations at Norfolk, Va., headquarters of the Airborne and the Proving Ground Commands, Ports of Embarkation, the AAF School of Applied Tactics and the Convalescent Center and Redistribution Station at Miami and Miami Beach.

Topping a Quota

The 8th Air Force's Christmas Eve attack, which threw more than 3,000 bombers and fighters against the Von Rundstedt counter-offensive, gave the 357th Mustang Group the opportunity to achieve its goal of "500 by Christmas."

For several days previously, the 357th's bulletin board had recorded progress of the "500" drive, but on the morning of December 24 the score stood at 483 enemy planes—439 shot out of the air and 44 destroyed by ground strafing.

The group's chance came that afternoon over Kassel, Germany, where the Mustang pilots encountered a Nazi fighter formation. They knocked 31 Jerries out of the sky and boosted the 357th's mark to 514.

The Winner

Weather forecasting honors go to M/Sgt. Herman J. Jordan. The sergeant was top man in a competition conducted by the AAF Weather Service among 100 domestic forecasters—and the race wasn't even close. Although the men behind him on the score tally rarely excelled their nearest competitor by more than a point or two, Sergeant Jordan led the runner-up by 240 points. Sergeant Jordan's clients at the Smyrna (Tenn.) Army Air Field should know what the weather score is, with no questions asked.

A War Diary

An idea of just how tough the AAF made it for the Nazis to maintain communications in occupied France is given by a "war diary" kept by the station agent at Maintenon, where two rail lines meet about 40 miles southwest of Paris.

The day-by-day record, discovered by an 8th Air Force officer who was investigating

PWs and horses once entered here

This wine cellar now offers movies

TRAINING AIDS

Newly Standardized for Field Use

FILMS

OPERATION OF THE GLIDER PICK-UP BY THE C-47 (TF 1-3399)—The mechanism and method by which a Skytrain, without touching the ground, snatches a glider and lifts it into the air. Running time: 16 minutes.

FIFTY-HOUR INSPECTION OF THE B-29 (TF 1-3432)—A check-up of engines, propellers and nacelles. Running time: 55 minutes.

AN AVIATION ENGINEER AMPHIBIOUS OPERATION (TF 1-3440)—Day-by-day steps in the construction of an island airfield. Running time: 12 minutes.

ASSEMBLY AND INSTALLATION OF ROCKET LAUNCHER TYPE M-10 (FS 1-2001).

HARMONIZATION AND BORESIGHTING OF ROCKET LAUNCHER TYPE M-10 (FS 1-2002).

TESTING PROCEDURE OF ROCKET LAUNCHER TYPE M-10 (FS 1-2003)—A check-list covering the electric firing circuit, interval control and firing sequence.

IDENTIFICATION OF CLOUD FORMATIONS FROM THE AIR (FS 1-2007)—Various views of cloud formations. Intended to aid personnel to recognize major types while in flight.

PUBLICATIONS

GUNNERS' INFORMATION FILE (AF Manual No. 20)—Two latest supplements to the file are titled *Gunnery in the B-29* and *Harmonization in the B-29*. The two also have been combined to form AF Manual No. 27. Distribution is limited to fields concerned with Superfortress gunnery.

THE UNIT GAS OFFICER AND GAS NON-COMMISSIONED OFFICER (AF Manual No. 50)—Defense techniques against enemy use of gas.

THE TROPICS — PERSONAL CARE, AIRCRAFT MAINTENANCE AND ELECTRONIC EQUIPMENT (ADTIC School Lecture T-11)—Measures by which personnel can avoid disease and by which equipment can be protected against climatic conditions in tropic areas.

AVAILABLE TRAINING AIDS FOR THE PERSONAL EQUIPMENT OFFICER—A list of films, publications, devices and graphics. Limited supply.

(Guides for Training Aids Officers, listed in this section of the January, 1945, issue of AIR FORCE, is officially designated AF Manual No. 22.—Ed.)

DEVICES

MODIFICATION OF C3-A SIGNAL LIGHT—A blinker apparatus, equipped with a 110-volt bulb and an AC plug instead of the usual 24-volt bulb and DC plug, thus permitting use of ordinary power supply. Approved for use in unit training only, the modified light can be seen both day and night and can be used by students for practice signalling across airfields. Scheduled for early issue.

GRAPHICS

CARDBOARD COCKPIT TRAINERS—Folding panels, used for instrument familiarization. In initial distribution in these models: B-17F, B-24J, B-29, C-46, C-54, P-38J, J-39Q, P-40F, P-40N, P-47D, P-51D and P-61B.

B-24 TECHNICAL CHARTS — Set of 41 sheets. Limited supply.

GENERAL ELECTRIC CENTRAL STATION FIRE CONTROL SYSTEM, MECHANICAL CONSTRUCTION, TECHNICAL CHARTS—Set of 35 sheets.

HOLLEY CARBURETOR, TYPE HB, TECHNICAL CHARTS—Limited Supply.

(The technical charts, listed above, were developed by the Air Technical Service Command and may be obtained through channels from that command's headquarters at Wright Field, Dayton, Ohio.)

RECOGNITION

RECOGNITION CATALOG—A list of all approved AAF recognition training aids, including appendix of stock numbers. Catalogs already have been shipped to headquarters of all overseas and domestic air forces for redistribution to recognition instructors.

Information on the availability of training aids listed in this column, unless otherwise indicated, may be obtained from the chief, Training Aids Division, Army Air Forces, One Park Avenue, New York 16, N. Y., upon request through channels.

the results of strafing and dive-bombing by P-38s, P-47s and P-51s, covered the period from June 1 to the day the Americans took the town. A condensed translation follows:

June 4—Locomotive strafed in station yard. A freight train about three kilometers away also was strafed by twin-tailed fighters.

June 6—Viaduct strafed and electric connections cut. Station and electric connection strafed.

June 12—Electric connections cut by strafing on all four lines. All traffic stopped for two days.

June 16—Traffic strafed on road near town.

June 18—Four aircraft strafed flat cars on out line of track. Cars and loads damaged.

June 20 — Approximately 24 fighters dropped 40 bombs, cutting tracks Numbers 2 and 4 in two places, track Number 3 in one place, destroying all electrical connections and all switching facilities for two kilometers. All traffic stopped for eight days.

June 22—Viaduct and station bombed by small number of planes that dropped 12 bombs. Station hit and viaduct cracked.

June 23—Train stopped on track near village strafed. Cars set on fire.

July 2—Strafed German trucks on road through town.

July 4—Two fighters strafed German anti-aircraft batteries located on viaduct.

July 23—Train strafed on track outside of town.

July 26—Strafed freight cars in station yard.

July 27—Fighters dropped bombs near station. No damage.

July 28—Flak batteries strafed. Results kept from civilians.

August 6—Station strafed.

August 10—The Americans arrived.

Lost Parachutes

No. 42-65417, seat type; return to F/O James B. Kiefer, T-4273, Malden Army Air Field, Malden, Mo.

No. 42-389533, seat type; return to Post Operations Officer, Midland Army Air Field, Midland, Texas.

Nos. 42-239727, 42-285076 and 42-371246, all S-1 seat type; return to the Commanding Officer, Merced Army Air Field, Merced, Calif.

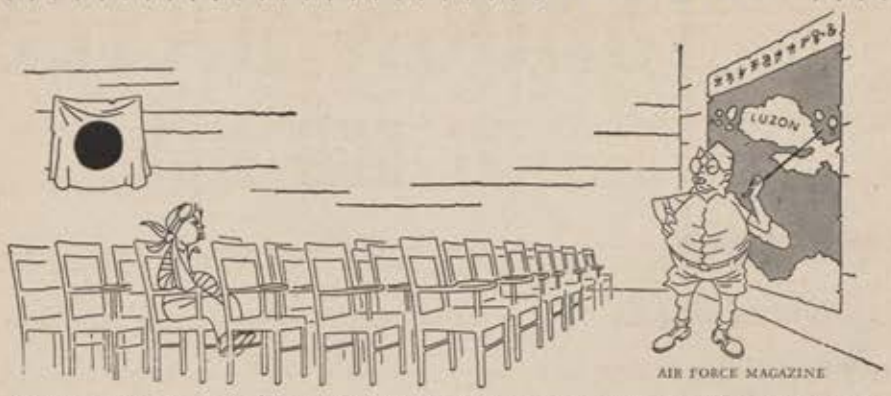
No. 42-270662, seat type; return to Supply Officer, 72nd AAF Base Unit, West Annex, Porter Building, Kansas City 2, Mo.

Nos. 42-785425, 42-785684, 42-786118, 42-426590, 42-296019, 42-316443 and 42-277629, all seat types; return to Parachute Dept., Ellington Field, Texas.

Nos. 42-7500 and 42-5707, both seat type; return to Tech Supply Officer, 1378th AAF Base Unit, NAD-ATC, La Guardia Field, N. Y.

No. 42-146582, seat type; return, express collect, to 1st Lt. Charles A. Temple, 2124 AAF Base Unit Section B, Harlingen Army Air Field, Harlingen, Texas.

No. 43-16795, chest type; taken from Fairfax Field, Mo., on Nov. 6, 1944. Name Lt. T. D. Woods stenciled on pack and harness. Return to Capt. Thomas D.



"All honorable imperial fighter pilots will again intercept and destroy B-29s off Manila."

Woods, Jr., CNT Department, Headquarters, Army Air Field, McCook, Neb.

Nos. 42-192520, 42-210298, seat type; return to 78th AAF Supply Officer, Selman Field, Monroe, La.

Short Bursts

Smaller AAF stations which in the past have been visited infrequently by senior staff officers of AAF Headquarters will hereafter be included regularly on these officers' itineraries, under a recent order by General Arnold. . . . The Japs at Iwo Jima recently turned on the welcome-lights for a 7th Air Force B-24 during a night attack on the enemy strip. The Lib approached the island from a northerly direction, having flown within 300 miles of Japan in search of enemy shipping, and the Japs apparently thought the plane was one of their own bombers coming in from Tokyo. The beacon and all landing lights along the strip were switched on, offering a perfect night target. . . . Members of one combat training crew at the Dyersburg (Tenn.) Army Air Field, practicing ditching technique with a mock-up B-17 mounted in a lake, have scrambled from the "plane" to their life rafts in 8.6 seconds, which they claim is some sort of a record. . . . In England during 1944, more than 30,000 AAF mechanics received specialized training in 147 special courses on aircraft maintenance. Prior to the invasion, 12,000 men attached to the 9th Air Force were given extra-curricular training in detection of mines and booby traps to enable them to clear captured airdromes as the Allied forces moved in. . . . The Office of Flying Safety is recommending that better judgment be used in the selection of sites for wind direction indicators. At one southern training base, the indicator was found to be giving erroneous readings because the wind was being deflected around a nearby grove of trees. . . . About four-fifths of New Zealand's bombers and fighters have been shifted from security duties in the South Pacific to combat duties with forces in the Southwest Pacific, Air Vice Marshal Lawrence M. Isitt, RNZAF Chief of Air Staff, reported recently. The bulk of the RNZAF aircraft had been employed in mopping up such planes as the Japs had left in the Bismarck-Bougainville area. . . . Since the introduction of body armor for combat aircrews, there has been a reduction of 58 percent in individuals wounded and 60 percent in wounds sustained. Effectiveness of body armor has been established through studies of this reduction in relation to battle damage to aircraft. . . . Of the 586 aircraft of the 8th Air Force reported missing immediately following attacks over Europe during November, 304 later turned up intact, most of them landing on airfields liberated by ground forces in France and Belgium. More than 120 had to be repaired before returning to England; others merely needed refueling. . . . A glossary of signs and symbols for use in photographic interpretation has been issued to all holders of the standard Photographic Interpretation Handbook. Entitled "Standard Symbols," this first supplement to the handbook was prepared by the Office of the Chief of Naval Operations in collaboration with G-2 and the Assistant Chief of Air Staff, Intelligence. . . . The Air Service Command of USSTAF in Europe estimates that paper work required for requisitioning and filling supply orders consumes 18 miles of paper every 24 hours, 6,570 miles a year. . . . Lt. James R. Spofford didn't know it at the time but the Jap Oscar he shot down over the central Philippines on December 1 marked something of a milestone in the history of the 13th Air Force. It was the 1,000th enemy plane destroyed by the 13th in action over three major Pacific theaters. . . . The 56th Fighter Group, top-scoring outfit in the 8th Air Force, celebrated its second anniversary in the ETO on January 6. Since its first operational mission on April 13, 1943, the group has destroyed more than 800 German planes. . . . Light, highly maneuverable C-64s which can operate from small, shell-pocked areas within gunshot of frontline action are flying ambulance relay service in France. Operated by the Air Service Command Transport Wing, they can carry three litter patients or five ambulatory evacuees.

HOW SHARP ARE YOU?

QUESTIONS

1. Can you identify the airplane in the picture?
2. Is the propeller turning?
3. Does the airplane have a nose turret?
4. Is the windshield on the jeep up or down?
5. There is a fire extinguisher and a mirror on the jeep. True or false?
6. What are the last three numbers on the hood of the jeep?
7. How many men are clearly shown in the picture?
8. What is the rating of the man driving the jeep?
9. What does the other man in the jeep have in his right hand?
10. How many men are wearing hats?

ANSWERS ON PAGE 55

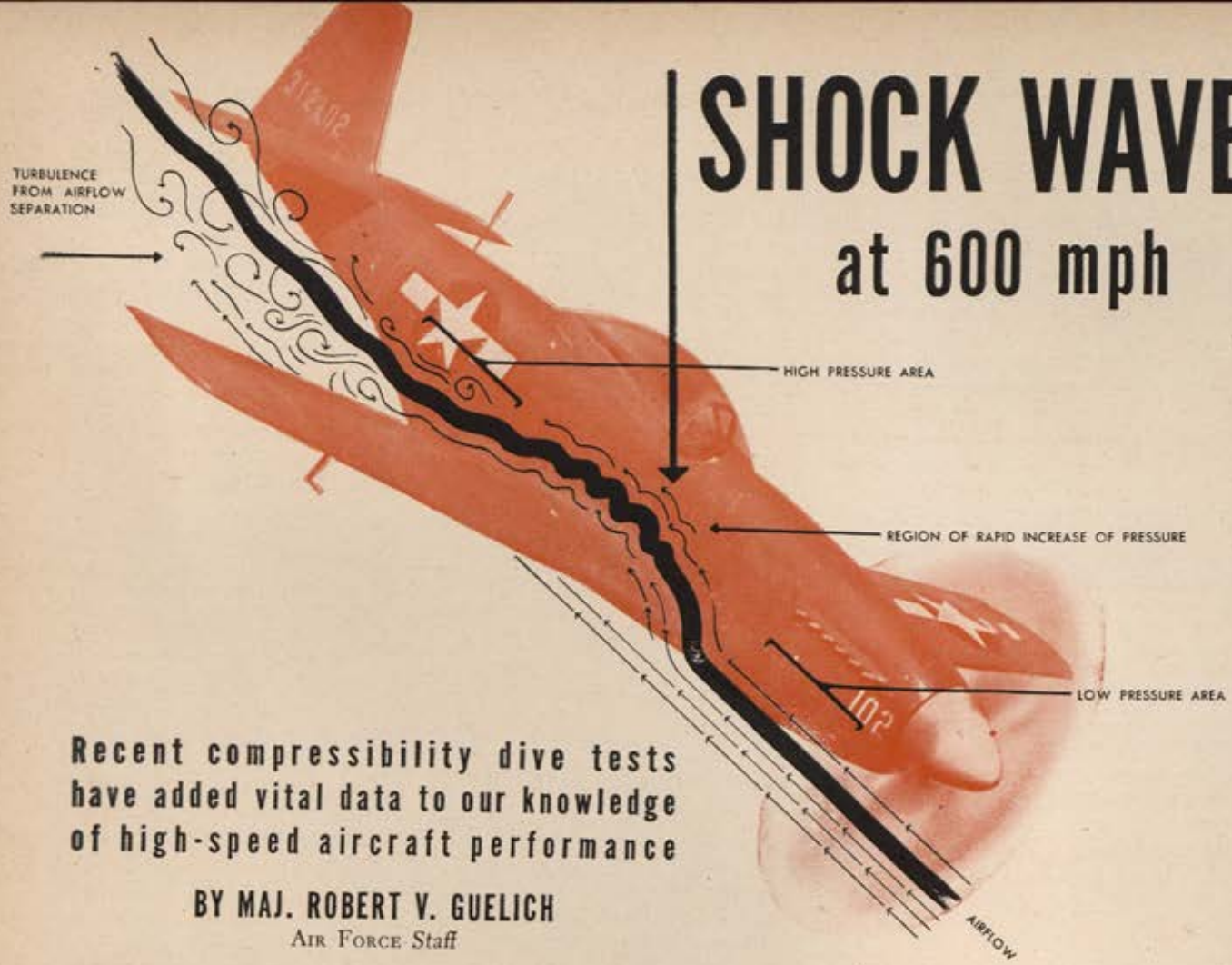
HOMER

"Have you met our new Intelligence Officer?"

Why Not Contribute?

Whether they are short bursts or blockbusters, your suggestions for Cross Country items will be welcomed. Address your articles, comments and criticisms to Cross Country, AIR FORCE Editorial Office, One Park Avenue, New York 16, N. Y.

SHOCK WAVES at 600 mph



Recent compressibility dive tests have added vital data to our knowledge of high-speed aircraft performance

BY MAJ. ROBERT V. GUELICH
AIR FORCE Staff

The major had just made two high-speed compressibility dives from 40,000 feet in a P-51D and he was trying his best to convince a veteran colonel of what he had observed.

"You won't believe it, sir, but I saw it—a shock wave, on the wing. Yes, I know no one else has ever seen one so how can I prove it?"

Now, Maj. Fred Borsodi is a very enthusiastic pilot but he is reliable. His experience includes test flying for Pratt & Whitney and plenty of action as a P-40 pilot in the Mediterranean before returning to Wright Field.

But see a shock wave in a 600-mile-an-hour dive? To the colonel that was a little too much. He smiled benignly.

"Fred, these dives are pretty strenuous and you've been working mighty hard. You'd better take off for 10 days."

The 28-year-old pilot shook his head and left the office.

Ten days later, Major Borsodi was back in his flying clothes on the Wright Field flight line. In his plane was a newly-installed camera, aimed over the top surface of the wing. There were a lot of sly smiles and cocked eyebrows when he requested the camera but he was determined to get proof. No one could argue with a photograph.

The dives had become routine. At 40,000 feet he pushed the nose down and watched his airspeed. Too steep a dive might shake the plane apart. Rushing earthward at 10 miles a minute, the plane began to shudder as it ploughed through the air. Suddenly, the sun caught something on his wing, like a heat wave or a strip of cellophane from the fuselage toward the tip—the shock wave phenomenon. The wave moved back toward the trailing edge as speed increased then slowly moved forward and disappeared as the plane slowed down while coming out of the dive.

The motion picture camera had the proof to substantiate Major Borsodi's "wild" claims. He was the first man to see a compressibility shock wave on an airplane wing, and he now had pictures to prove it.

Visual discovery of the shock wave was accidental in that the purpose of the series of 32 compressibility dives flown by Major Borsodi was to determine stability characteristics of the P-51D at high Mach Numbers (Mach number being the quotient of the plane's true airspeed divided by the speed of sound), and establish a safe Mach Number limit which should not be exceeded by other pilots.

Not satisfied when he learned that compressibility began to make the plane shudder and shake at a Mach Number of .76, Borsodi continued his tests until he reached .86 when the coolant radiator, oil cooler and hydraulic lines cracked from the intense vibrations. At this Mach Number, he was flying at a true airspeed of approximately 640 mph—believed to be the fastest instrumented flight ever made.

His dives revealed that a pilot can encounter the effects of compressibility (usually first noticeable as vibrations or tail buffeting) and safely slow down his plane, and that the greatest danger lies in rapid pull-outs from dives in which high acceleration forces (G) will rip off wings and tail.

By trimming the P-51D nose heavy, prior to entering the high-speed dive, Borsodi was able to keep his plane under control at all times. Tendency of the plane to porpoise during the dive was prevented by holding the control stick firmly; efforts to compensate for porpoising only intensified the danger.

The shock wave encountered in high-speed dives at high altitudes is a thin layer of air in which there is a very rapid increase of pressure. It forms only when air passes over a

surface, such as an airfoil, at or in excess of 1,100 feet per second at sea level conditions (760 mph), which is also the speed of sound. The speed range in which a shock wave is formed is known as the compressibility region.

Although shock waves, similar to bow waves on a boat, will form at or in front of the nose of any object moving at speeds greater than the speed of sound, they also can form at the thickest part of the wing or at a wing-fuselage junction on an airplane moving at subsonic speeds provided the airplane Mach number is high enough. In such cases, although the airplane is passing through the air at less than the speed of sound, air flowing over the curved top of the wing may exceed sonic speed, thereby creating the conditions required for formation of a shock wave.

When a shock wave is produced, the air separates from the surface of the wing instead of flowing smoothly over it. (See Diagram.) If this turbulent air strikes the tail, it will cause buffeting of the control surfaces, particularly, the elevator. Most pilots are familiar with tail buffeting, which occurs in high-G turns and pull-outs. Compressibility tail buffeting, however, may occur in a straight dive at less than one G, and becomes more severe as the Gs are increased.

With the formation of a shock wave on the wing, the lift on the wing will be greatly decreased. This will affect the stability of the plane, shift the center of gravity to a far-forward position, make pull-outs difficult.

Compressibility dives by pilots of P-47s and P-38s have revealed some tendencies for these planes to nose under as diving speed increases.

Here are some general effects of compressibility on P-38s, P-47s and P-51s, based on Wright Field and Orlando tests.

P-38: Buffeting of the horizontal tail surfaces followed by loss of elevator control and occasional tendencies of the plane to be extremely nose heavy. At the first evidence of buffeting, the pilot should flatten his dive angle.

P-47: Buffeting of the horizontal tail surfaces and almost simultaneous "freezing" of the stick (requiring near-superhuman force to pull out), increase in stability, tendency to be nose heavy, and reversal of stick force. When such phenomena are encountered, the pilot should not reduce power since this will tend to put the plane in a steeper dive. No change should be made in elevator trim during the dive. Gentle pull-out should be started beween 18,000 and 15,000 feet; the airplane will recover with strong steady back pressure on the stick until the elevators become effective.

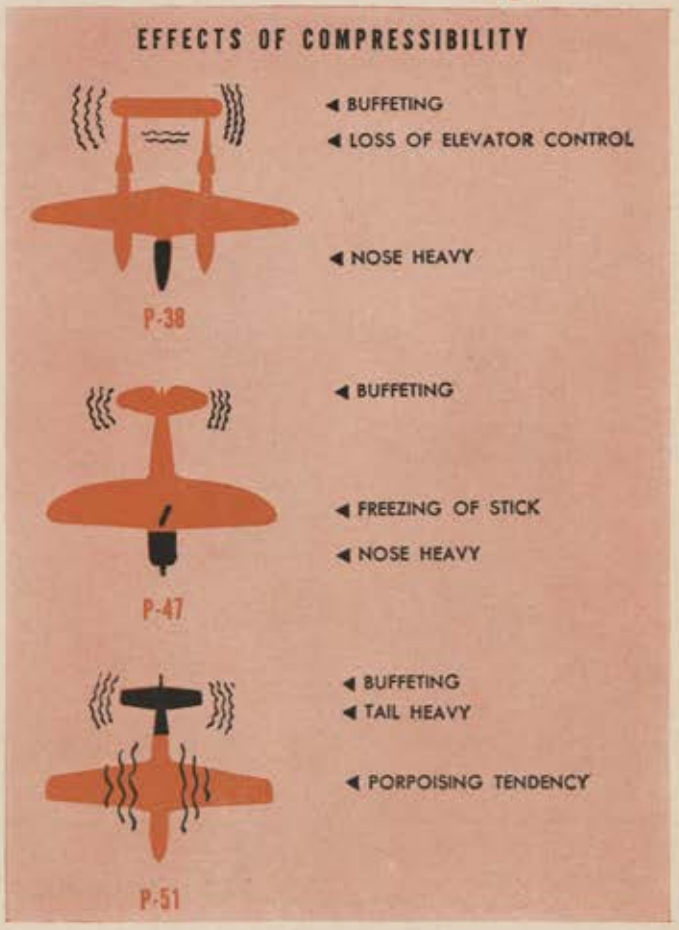
P-51: Vibrations and tail buffeting followed by porpoising tendency, slight heaviness of the ailerons and tail. Tail heaviness should be trimmed out, the stick should be held as nearly stationary as possible. Cutting power seems to have little effect, but it helps in reducing speed.

From the AAF Board at Orlando, following a series of compressibility dives with high performance fighter aircraft come the following recommendations:

To avoid compressibility—(1) Do not exceed airspeeds corresponding to three-fourths the speed of sound at the altitude at which dives or maneuvers are to be carried out. (2) Avoid violent use of ailerons. (3) Never roll into a vertical dive above 30,000 feet. In this attitude, speed may increase so rapidly that the critical speed may be involuntarily exceeded. (4) At high speed at altitude, use controls gently as if the airplane were near a stall. Do not be in too much of a hurry to recover from a dive because high G forces will cause entry into the compressibility range above 20,000 feet and much more easily than below 20,000 feet.

Major Borsodi's reports on controllability and behavior of the P-51D in high-speed dives have provided the basis for a new series of compressibility dive tests at Wright Field. From these tests it may be possible to determine safe Mach numbers for each type of high performance aircraft. ☆

Shock wave developed on wing of a P-51D during compressibility dive. Silhouette at right shows the section of the wing that was photographed.



ROUND TRIP TO TOKYO

Captain Raymond Creekmore, AIR FORCE Staff Artist, took his sketch-book on the first B-29 strike against the Jap capital. Here are some scenes from that memorable mission

Ground crews cheer as the
first Superfort lifts a tremendous load of gasoline and bombs from the runway at Saipan—

It is minus 28 degrees outside the plane – but our pilot is soaking wet with good honest sweat as we plough into the flak —

Central fire control is making life miserable for Jap fighters – This gunner has an unobstructed view around 360 degrees of the horizon —

Our side gunner keeps an eye on fighters coming up as bombs fall from the planes in our formation —

ANTIAIRCRAFT... PARTNER OF THE AAF

BY CAPT. JOSEPH D. GUESS

AIR FORCE Staff

"Flak at 12 o'clock close"—that old interphone cry—has caused many American airmen to curse the accuracy of enemy fire and wonder just how well our own antiaircraft gunners can hand it back.

Twenty-five thousand feet over an invasion beach, one B-17 crew got a plain, short answer to that question. This Fortress flew ahead of the others to drop pamphlets telling civilians to scram. Not recognizing the lone plane, an American gun crew about to land took a warning shot. The single shell exploded close enough to crack the plane's windshield.

Antiaircraft and the Army Air Forces, in their mutual fight against the airborne enemy, have reached a coordination that really works. Antiaircraft's development in equipment and personnel has kept pace with that of the AAF and combat records tell an impressive story.

In France ack-ack gunners in one 31-day period destroyed or damaged 38 percent of all enemy aircraft that dared fly over the First U. S. Army's zone of action. Nine percent of the total were definitely destroyed and five percent probably destroyed. During a 20-day period AA sharpshooters deadpigeoned 105 enemy aircraft, and probably got another 93 planes. Then, on one September day, things really got cracking. Our ack-ack blew up 21 of 33 German planes sent into the First Army's area; a single battery claimed four FW-190s in four minutes. Near Paris one night the enemy dropped flares and then got trapped in his own light. A battalion of 40 mm guns downed 21 Huns in 15 heated minutes.

A few years ago AA personnel numbered but a few thousand men; today they are several hundred thousand. AA is entirely separate in organization from all other branches of artillery and, under Army Ground Forces, has a command of its own headed by Maj. Gen. Joseph A. Green. There are four large AA training camps in the United States.

To promote AAF—AA cooperation from the top commands to the gunners on the ground and the planes at the front, General Arnold has set up an antiaircraft office in Headquarters, AAF, and named Maj. Gen. Homer R. Oldfield, veteran artilleryman, to head it as Special Assistant for Antiaircraft. More than 75,000 AA enlisted men and officers have been obtained from the Antiaircraft Command and specially trained under AAF direction for AA assignments directly with the AAF. These men are available for assignment to overseas air commands and from the latter go to air divisions, to wings and finally to group bases.

General Oldfield's office also helps formulate overall policies for joint efforts of AAF and AA on the battlefield. In some operations in France and in the Pacific, our aircraft have taken over the fight against the aerial enemy by day, and antiaircraft has had the whole job—along with Signal Corps warning systems—at night.

American AA gunners aiding the British in England shot down in August and September more than 50 percent of the enemy's robots within range. Nor has the skill of our AA men been overcome by the phenomenal speed of jet propelled aircraft. They are scoring with increasing frequency against German jet fighters.

Such shooting calls for quick fingers, sure eyes, and a steady head. Delicate and exceedingly fast computation is necessary when a gunner must aim, as he often has to, four

American soldiers man multiple 20 mm flak gun captured from the enemy at Paestum, Italy. This weapon is capable of being swung in a wide arc and used as antitank gun as well as antiaircraft.

Our ack-ack gunners share with us the responsibility for destroying enemy airpower

miles ahead of his quarry if he expects the speeding plane and his shell burst to reach the same point at the same time.

Antiaircraft claims fall into two classes. Destroyed planes are classified as Category I, and must have been seen to crash, and their wreckage found afterward. Probables, or Category II claims, are made for severely damaged planes verified by several witnesses. Antiaircraft's record, like its shooting, is accurate.

But a price of blood has been paid for this record. One battalion, landing on a French beach with the first infantry assault waves, came under direct enemy artillery fire and lost 300 men and 15 officers. Yet it set up antiaircraft defenses for other incoming troops.

Our AA crews have been on the job longer in Italy, and often with excellent hunting. At the Anzio beachhead, a world's record was established for AA concentration—surpassing in accuracy and quantity the German flak over Cassino or any German homeland target. Fifty Army ack-ack men destroyed 462 planes, nearly a tenth of the number involved in 635 air attacks. Another six percent were probably destroyed. One night ack-ack aimers, with a well-rounded use of searchlights and guns, destroyed five out of 12 German planes—and fired only 178 shells.

This record of 178 shells is even more striking when it is recalled that to destroy one enemy plane during London's early blitzes an average of 3,000 shells was needed. Other instances are as exceptional.

A United States ack-ack crew in India found itself in combat recently before it had finished digging into position at a new field. It knocked down one Jap bomber and one fighter. Having taken a five-minute break for this purpose, the crew settled back to digging.

When another field in the CBI theater was under attack, an AA crew forced the enemy's fighters and fighter-bombers to turn aside from their runs toward the hangars and parked aircraft. The Japs became so annoyed that they abandoned their main purpose and concentrated on strafing this single gun crew. That didn't pay either. The gunners blew up two Jap planes before the rest decided to run home.

In North Africa, the Air Force so sliced down the enemy's airpower that comparatively few target planes reached our lines where antiaircraft was set up. When antiaircraftmen became bored with the inactivity, they were put alongside heavy artillery and told to blast away at targets on the ground. This had good effect also in Italy, later.

But whether firing at the Hun in the air, or blasting him on the ground, the AA crews gave him no quarter. The combat soldier usually can distinguish sounds of oncoming artillery shells and has a split second to flatten out or take cover; but the high velocity and flat trajectory of ack-ack guns pulled up to close range give the enemy no warning.

Antiaircraft alongside heavier artillery has eliminated scores of thick concrete pill boxes and other obstacles in France. At Cherbourg several AA men were concealed around a German fort. When some of the Germans tried to escape, gunners cut them down. The remaining personnel of the fort, 120 men and five officers, surrendered to two antiaircraft GIs.

An unprecedented use of antiaircraft set off an Allied advance in Italy. Our AA weapons were brought close to the front lines and directed in counter-battery fire against powerful concentrations of the enemy AA guns. This was fighting flak with flak. Our fire was so well-timed and effective that immediately afterward a large number of AAF aircraft, including the heavy bombers, strafed the enemy from the deck without loss of a plane.

Research and scientific testing on the battle front, as well as in the interior, has resulted in superior predicting and detecting mechanisms and guns. The 50 cal. machine gun, specially souped up, has stopped many low-flying airplanes, as had the 40 mm automatic weapon with a maximum effective range of 2,500 yards, and a firing rate of a round a second. Outstanding is the record of the 90 mm gun which reaches to 30,000 feet and fires twenty 42-pound shells a minute, each shell having an effective bursting radius of 60 to 100 feet.

A mammoth in size and potency is the 120 mm gun, the United States' largest antiaircraft weapon. It fires 10 to 15 rounds of 102-pound shells a minute. The gun weighs 31 tons and is semi-mobile.

Most impressive development is the unplanned, spontaneous cooperation between AAF and AA, like the method devised on the spur of a precarious moment by one P-40 pilot.

He had tangled near his base with three Zeros and had shot down one, but his plane had been badly damaged. The remaining two Zeros were hot on his tail, and he couldn't shake them. Playing a hunch, he buzzed a nearby antiaircraft crew which obligingly blew the two Zeros to pieces. The P-40 pilot landed safely.

He had learned why antiaircraft has become the AAF's trusted teammate. ☆

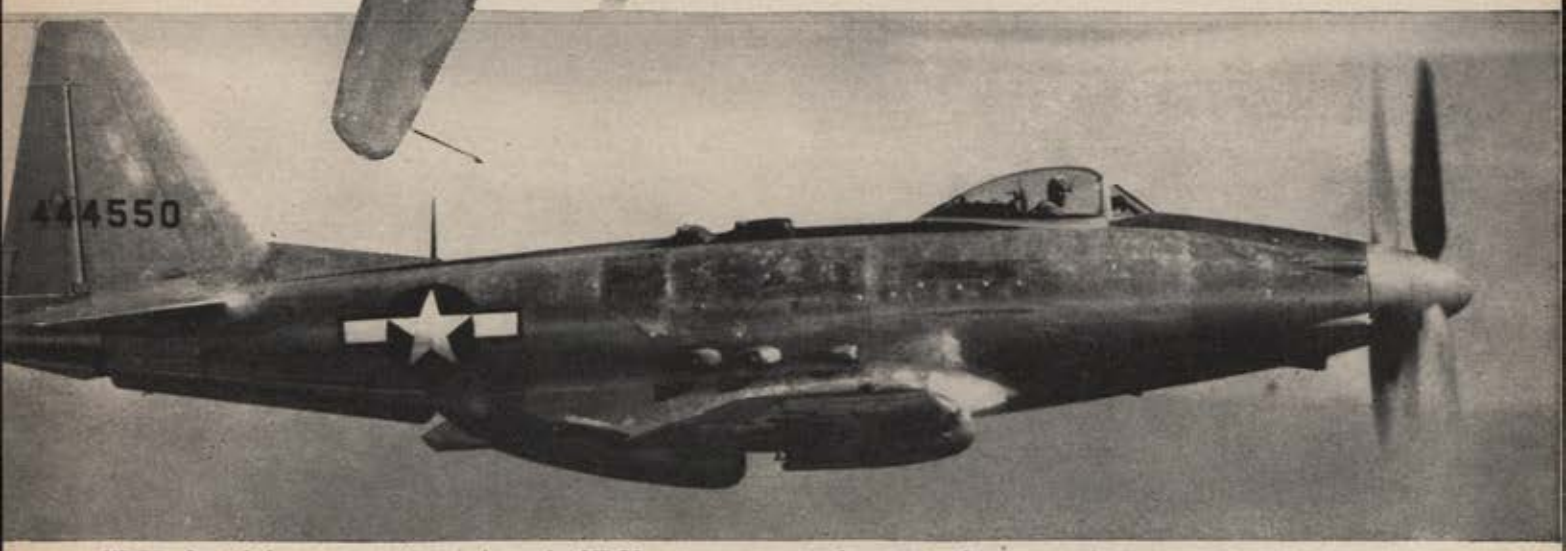
Somewhere in North Africa men of an antiaircraft regiment rush to their gun positions as alert warns of approach of hostile aircraft.

Natives on Guadalcanal get set for the big bang. Pits in right foreground shelter gun-crews from low-flying Japanese planes.

fighter fashions

These extremist fighter designs are AAF engineering test planes, born of war. They will never see combat, nor are they prototypes of future fighters. They are winged classrooms which are contributing to AAF warplane development.

XP-67. A single-place interceptor with airfoil shaped fuselage and nacelles, McDonnell's XP-67 uses turbo-exhaust for jet thrust.



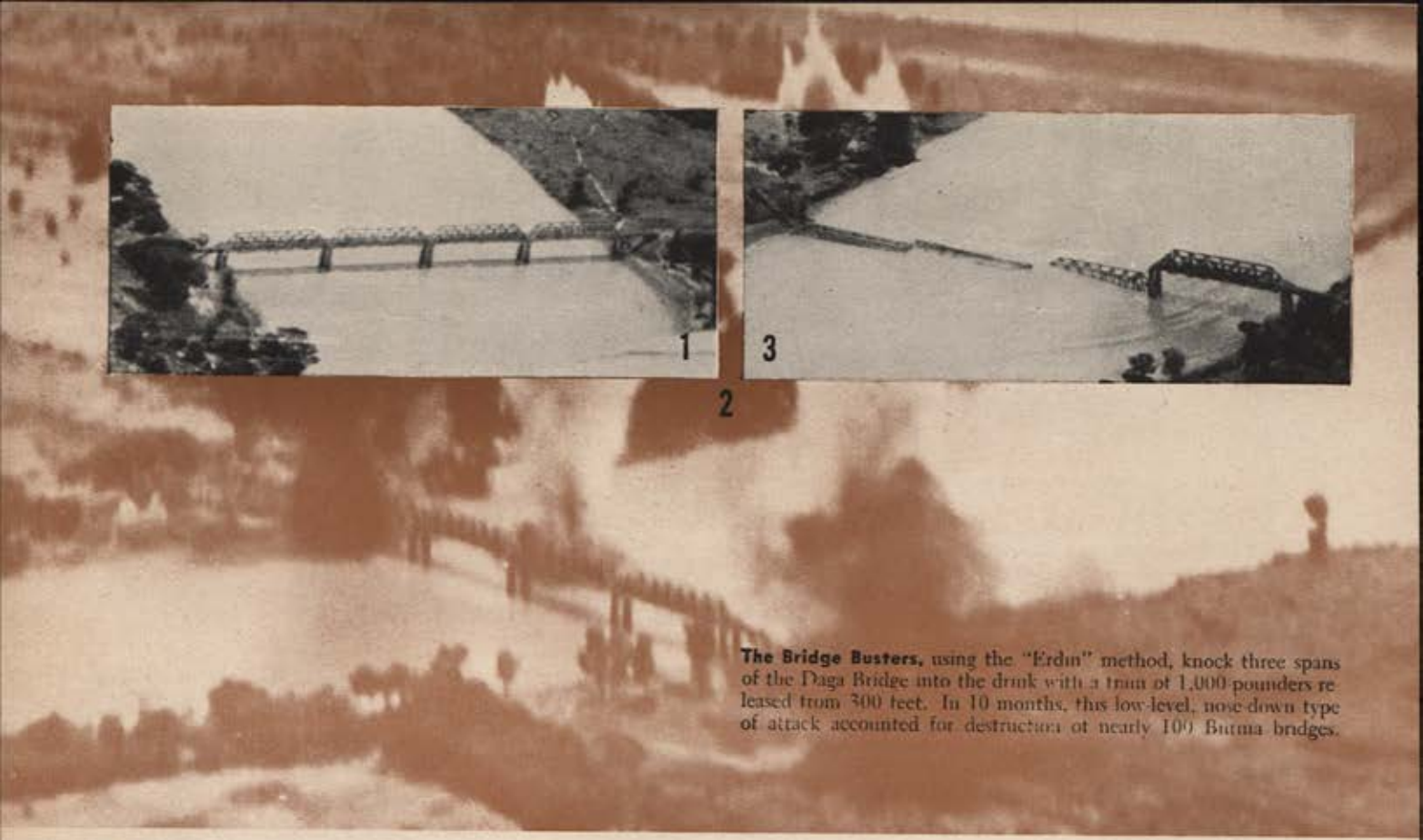
XP-75. Intended as a composite airplane, the XP-75 was to use assembly parts already in production for other aircraft. It was to have P-40 wings, F4U landing gear, A-24 tail, but the finished product emerged as a completely new design, long and slender with an extremely thin airfoil and peculiar rudder shape. Allison 3,000 hp engine drives twin co-axial counter-rotating propellers.

XP-56. Dumbo of the AAF's test-tube warplanes is Northrop's stubby XP-56, flying wing with engine weight concentrated on wing's mid-section. The fuselage is an elongated engine nacelle. Radial engine drives two three-bladed counter-rotating pusher-type props. Elevator and lateral controls are at wing tips. Fixed vertical fins above and below the fuselage give the XP-56 sausage-like profile.

XP-55. Embodying some of the control principles of the flying wing, the Curtiss XP-55 has elevator controls in the extreme nose. Minus conventional rudder, the plane has vertical stabilizers near tips of its sweptback wing to aid directional control. Allison "1710" engine is mounted in rear, thereby permitting use of forward firing armament installations balanced by weight of engine.

XP-54. First AAF pusher-type fighter since the twin-engined Bell XFM-1, Vultee's twin-boomed, bullet-shaped XP-54 introduced a low drag airfoil section, was one of the first planes to have flush-riveted "fender finish" skin, features designed to cut down on drag forces. Called the "Swoose Goose" because of its inverted gull wing, it has a four-bladed prop driven by Lycoming inline engine.

XP-77. Only all-wood AAF fighter of the war, the Bell XP-77 was built when metal shortage loomed critical. Hollow propeller shaft permits use of single forward-firing cannon. Powered with inline Ranger V-770 engine, the XP-77 uses small, two-bladed metal prop with large spinner hub. Speedy and maneuverable, it was designed for possible use against sharp-turning Japanese Zeros.



The Bridge Busters, using the "Erdin" method, knock three spans of the Daga Bridge into the drink with a train of 1,000-pounders released from 300 feet. In 10 months, this low-level, nose-down type of attack accounted for destruction of nearly 100 Burma bridges.

Burma Bridge Busters

BY T/SGT. RICHARD M. POWERS

AIR FORCE Staff

It might be said that the "Burma Bridge Busters," as the flyers of the 10th Air Force's 490th Medium Bombardment Squadron are known, owe much of their success to a tree—the one that got in the way of Maj. Robert A. Erdin's B-25 just as he was about to drop a load of 1,000-pounders on the Mu River Bridge, New Year's Day, 1944.

Roaring in at very low level for the attack on this important link in the Burma Railway, Major Erdin had to gun his bomber to avoid hitting the tree which loomed unexpectedly in his course. By the time he could get the Mitchell back to the predetermined altitude of attack, he was already on the target and was forced to release his bombs while the plane was still nosed downward in a shallow dive.

Photos revealed the devastating effect of the well-placed, delayed-action missiles. The bridge had been demolished. But of even more importance was Major Erdin's chance discovery of what he and other pilots in his outfit had been seeking for two months: the technique by which the "skip" could be eliminated from low-level bombing—the technique by which the 490th was to account for most of the 99 other bridges it was to destroy in the next 10 months.

Back in November, 1943, the squadron had turned its attention to blasting bridges on the Jap main lines of communications in Burma, after being engaged for nearly a year in knocking out enemy railway junctions, supply trains, river shipping and troop concentrations.

Scant success had greeted the outfit's early operations in its new assignment. Its initial mission was against the Myittha Bridge, vital trestle in the rail line connecting Rangoon with the Burma Road. The attack, made at conventional medium altitude, proved to be a flop. The bridge approaches and the area immediately surrounding them were blanketed by bomb bursts, but the structure itself was undamaged.

Thus convinced that medium-level bombing would be ineffective upon most bridges of the type found in Burma, Lt. Col. Robert D. McCarten, squadron commander at that time, tried low-level skip-bombing. The bombs were dropped with bullseye accuracy, but the method employed proved to be too aptly named. The bombs were skipping, all right; they were skipping the targets. Some skipped over and some under the bridges, while others landed on the spans only to ricochet to the shores where they exploded with little or no tactical effect.

It was while the squadron was seeking an efficient low-level technique that Major Erdin, then squadron operations officer and now commander, hit upon the solution by his New Year's Day lucky discovery that a shallow dive just prior to release would plummet the bombs earthward at an angle that would prevent them from bouncing upon impact.

Experimenting during the next few days with his innovation, Major Erdin found its effectiveness could be improved by dropping the bombs while the plane was flying parallel to the structure being attacked. Previous squadron procedure had been to approach a bridge at a slight angle and drop the bombs in train at short interval.

By January 15, the entire squadron had been drilled to perfection in the new low-level, shallow-dive, parallel-release style of attack and was ready to use it in combat. It was only natural that Colonel McCarten should choose the still-standing Myittha Bridge as the first enemy objective to taste the effectiveness of the Erdin plan.

To Lt. Andrew J. Boutselis went the satisfaction of delivering the telling blows to the narrow, 280-foot rail bridge. After bombs from two preceding planes had softened up

the target, he slid two eggs into the trestle near its center, ruining the structure. Only the north span remained standing, and photos showed it was badly out of line.

The bombs which turned the trick were the same as those used by Major Erdin against the Mu River Bridge—general purpose 1,000-pounders, fuzed for 8 to 11-second delayed action. Lieutenant Boutselis said that at the point of release his altitude was 250 feet, his angle of dive, approximately 20 degrees, and his indicated airspeed, 280 mph.

From that day, things went well with the 490th. During the next 10 months, the "Busters" destroyed 98 more bridges and damaged 44 others. Their best score was registered April 10 when they knocked out six key bridges on the railroad between Mandalay and Rangoon, effectively paralyzing all movement over that line. By razing the Bawgyo Bridge on November 8, they boosted their score to 100.

"It has been our experience," Major Erdin explains, "that in attacking targets which do not present a massive vertical surface sufficient to stop the terrific forward motion of the bomb, a shallow dive must be employed. And when ground defenses permit, a run at 300 feet above the target is even better."

The Meza Bridge was a typical example of the targets against which the 300-foot, maintained-altitude method of attack was used with great success. Major Erdin was flight leader the day that rail trestle over the Meza River was smashed. Here is a portion of his version of the mission:

"After crossing the Chin Hills at an altitude of 14,000 feet, we let down at 500 feet a minute, arriving just south of the target at an altitude of 1,000 feet. The three planes were in V-formation. Direction of the attack was to be from east to west since a long stretch of the railroad led straight to the bridge, affording an excellent opportunity to kill any drift on the bombing run.

"The moment the target came into view, I gave a visual signal to the left wing plane, which peeled off to the left, circled to the east and made its planned two runs.

"During the few minutes consumed by the first attacks, the right wing plane and mine circled the target at about 750 feet in a Luftberry pattern. This put us in a position to observe results and gave the photographer an opportunity to secure excellent shots of the result of each run.

"I made the second run the moment the atmosphere cleared and the left wing plane climbed to 750 feet and circled. This same procedure was followed by the right wing plane. The moment photographs had been taken after the last run, we headed home."

In 101 bridge-busting missions, the 490th expended more than 1,000 tons of bombs, releasing 13 two thousand-pounders, 1,556 thousand-pounders, 784 five hundred-pounders, 33 two hundred and fifty-pounders and 240 hundred-pounders. Sowing the smaller delayed-action bombs after an attack is SOP with the "Busters."

The squadron finds its chief delight in the cat and mouse game of blasting a bridge, allowing the enemy to rebuild it nearly to the point of serviceability and then returning to crack it up all over again.

As one bombardier puts it, "We must be driving the Japs out of their minds. And that's only preliminary to driving them out of Burma." ☆

This 10th Air Force B-25 squadron can match records with any outfit in the AAF when it comes to wrecking enemy communications

Mitchells of the 490th play cat and mouse with the Wuntho Rail Bridge. In photo 1, Lt. Herbert Schwarz has snapped the bridge in two by smacking it dead-center with 1,000-pounders. Photo 2, taken two weeks later, shows that the Japs have completely rebuilt the bridge, the old span lying next to the new structure. In photo 3, Lt. C. F. Powell has shattered the new bridge with 500-pounders, thereby again delaying Jap supplies over Rangoon-Myitkyina line.

1

Mission to Balikpapan

BY LT. RICHARD S. REYNOLDS

Bombardier, 13th Air Force

ILLUSTRATED BY CPL. LOUIS S. GLANZMAN

A kind of shiver runs through me when I hear that the target is Balikpapan, and I can feel it again when the briefing officer says we will be on our own. The distance is too great for the fighters.

On the way to the line, I'm thinking about the target, Balikpapan. They told us in the operations tent that this will be a big one. It supplies 15 percent of Japan's total aviation gasoline and oil. We are in for some fun; the Japs are sure to have plenty of stuff around a target like that.

We reach our B-24—"Burma" we call her, for that lovely comic strip character—and check over our equipment and supplies. M/Sgt. Kurt Patzlaff, our crew chief, stands by, ready to defend his baby should we find some little thing wrong. We don't.

A brilliant October moon shines down, and I sit on the wing and write our load list by moonlight. Everything's set and on signal from the tower we taxi out on the runway.

Tonight it's the Number 1 position in our squadron for us. Three other squadrons already have taken off. We are

"I try to get in on the interphone but our copilot is screaming to our ball turret gunner."

Here's what it's like to fly 16 hours unescorted against one of the toughest targets in the Southwest Pacific. Here's what it's like to fly into a Japanese hornets' nest and out again

one of 76 tonight. A lot of bombs are on their way to Borneo.

I take my position in the well, forward of the bomb bays, to salvo our 250-pounders in case we lose an engine on take-off. I stand there feeling a little miserable. I have had only two hours' sleep and that's precious little when you are facing a 16-hour non-stop mission with an interlude over a rough target.

But now, Burma is roaring down the runway, and she lifts her heavy load of gasoline and bombs into the air. As we gain altitude, I look down on our runway lights. They will go off and then on again before we return.

I stand with my head in the transparent bubble on the roof of the plane, breathing oxygen through a mask. The cloud banks give me a sense of loneliness, as if Burma and the 10 men inside her are flying this mission to Balikpapan alone. Yet I know if some giant searchlight were to sweep across the sky, other planes would be around us. Now and then, we can see the outline of one off our wingtip, and there is an occasional lurch caused by the slipstream of the Liberator ahead of us . . .

Eight hours have passed and now it is daylight. We are still over water but land, enemy-held land, is in sight. We are nearing the target.

"Enemy interceptors ahead," our radio crackles, and we can see some of our planes already exchanging fire with them. A flaming thing curves across the sky and falls sharply away. One less Jap fighter.

We reach our initial point and turn for the bomb run. "It's your ship," the pilot calls over the interphone and I know for 90 seconds I'll be in command, and our squadron will follow the course I set over the target.

Things are happening all around now. We expected about 25 enemy interceptors but there are 50 to 60 bearing down on us. I can hear our copilot and gunners calling out their positions.

"One high at 12 o'clock, two low at three."

"Watch those guys above us in the sun, Hass."

"Look out, here they come."

I can feel the vibration as our gunners fire round after round, and now we are over the target. Their ack-ack is opening up. It is very accurate, deadly. It has us bracketed. There goes one Lib, then another. Down they go, flaming a farewell to us. I split a beer with one of those guys last night.

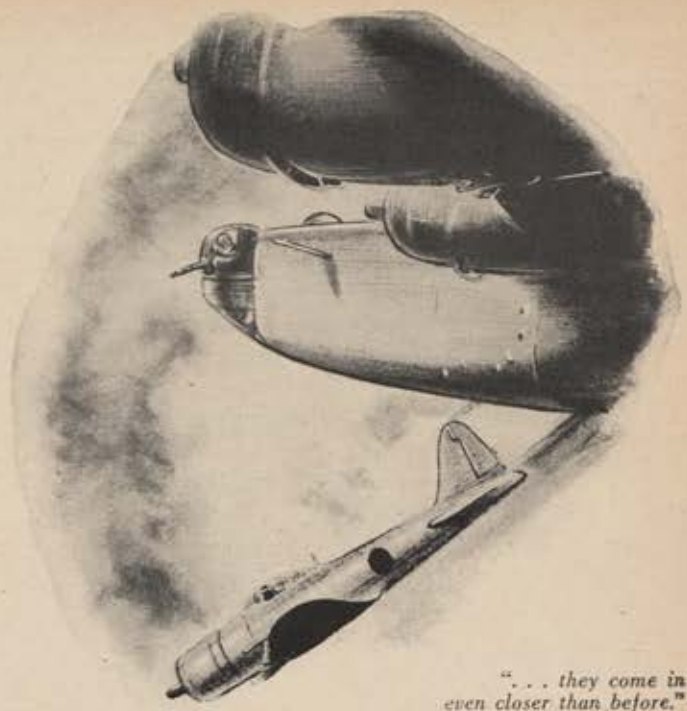
But I've got to watch this mechanical brain. It is solving a problem from the information I put into it. Altitude, airspeed, drift. Now the pointers are closing. Bombs away. I try to get in on the interphone but our copilot is screaming to our ball turret gunner.

"Black, Black, two level at 10 o'clock."

Black's vision is restricted but he swings his turret around and two Jap fighters close in together in trail to less than 100 yards. Black catches them in his sight and fires a long burst.

"I got one," he yells. "I saw the bastard explode."

"You did like hell," Romo at the right waist guns shouts back. "You got both of them. I saw the pilot of the other ship bail out over here."



". . . they come in even closer than before."

We have turned off the target now, and on the ground lights and explosions tumble on one another so rapidly I can't follow them. Weird pools of flame form in black clouds of smoke. Balikpapan's huge storage tanks of aviation gasoline are burning in a stew of fire and brimstone. I have seen fantastic sights in this war—a blue sky full of confetti that turned out to be paratroops, a big naval action at night, a dog fight between a P-38 and two Zeros—but I can roll all of them into one and still get no spectacle as eerie, as incredible as this sea of flame beneath us. Even now, the black columns of smoke are at our flight level, 18,000 feet.

The tempo of battle increases. They failed to stop us on our run, and now they are enraged and desperate. They come in even closer than before, flying recklessly in and out of our formation, always firing. One gets too reckless. He tries hard to pull up, but he is too late. He crashes into one of our bombers. Both planes explode and fall, twisting and burning. The pilot of that Lib was a buddy of mine; I feel slightly sick.

Now we are well away from the target and most of our attackers have turned back. Their losses have been heavy—but our group paid dearly, too. Our pilot calls the crew, one by one, asking each in turn if he's all right and if he knows of damage to our plane. Jackson in the nose turret says, "I'm OK." I tell him I'm all right, and so on back to the tail turret. No answer. The waist gunners are ordered back for a look, and soon they tell us, "Mac has a slug in his leg and his interphone is shot out. There's a hell of a big hole in the horizontal stabilizer, too." Seconds later, one of them adds, "Mac's OK. We can fix him up."

Our home field comes into sight just as the sun is dipping behind the horizon. We are very tired, very glad, very thankful. Burma seems to be, too, and she comes in for a perfect landing. She's very graceful for such a big girl. As we pull off the taxi strip and cut our engines, our crew chief walks slowly out of the twilight from the bunker's edge. He looks relieved. His name wasn't on our load list last night but his heart was aboard, every minute of the mission.

One by one, others of our squadron come home. ☆

AAF QUIZ

WHAT'S YOUR AIR FORCE I.Q.?

Here is your monthly brain-twister. Chalk up five points for each correct answer. A score of 90 or above is excellent; 75 to 85, good; 60 to 70, not too bad; below 60, tsk, tsk. Answers on Page 60.

1. Iwo Jima is
- A. *The name of a Japanese general*
- B. *One of the Volcano Islands*
- C. *A new Jap bomber*
- D. *One of the Philippine Islands*

2. The V-2 reaches a maximum altitude during flight of approximately
- A. *60 miles*
- B. *120 miles*
- C. *25 miles*
- D. *10 miles*

3. The ME-262 is a jet-propelled aircraft
- A. *True*
- B. *False*

4. Mukden is located
- A. *In south central China*
- B. *On the Japanese mainland*
- C. *In the Philippines*
- D. *In Manchuria*

5. A non-flying officer who participates in regular and frequent aerial flights ordered by competent authority receives an increase in base pay of
- A. *20 percent*
- B. *50 percent*
- C. *$60 per month*
- D. *$100 per month*

6. To what do the initials AFTAD refer?

7. World War I was legally terminated by joint resolution of Congress
- A. *Three days after the Armistice*
- B. *Approximately one year after the Armistice*
- C. *One month after the Armistice*
- D. *More than two and a half years after the Armistice*

8. The Bronze Star Medal ribbon is
- A. *Red with a blue stripe at each end*
- B. *Red with a vertical blue stripe in the center*
- C. *Blue with a vertical red stripe in the center*
- D. *Blue with a red stripe at each end*

9. Manila fell to the Japanese on
- A. *Jan. 2, 1942*
- B. *May 26, 1942*
- C. *Dec. 12, 1941*
- D. *Mar. 6, 1942*

10. Each engine of the C-82 is capable of developing how many horsepower during take-off?
- A. *1,000*
- B. *2,100*
- C. *1,650*
- D. *1,850*

11. With reference to the standard flight instrument panel, what is parallax error?

12. Wurzburg is
- A. *A German city about 20 miles due north of Berlin*
- B. *German radar apparatus*
- C. *A German non-com grade*
- D. *A German anti-personnel mine*

13. From December 7, 1941, to January 1, 1945, how many Medals of Honor were awarded to AAF personnel?
- A. *11*
- B. *24*
- C. *56*
- D. *98*

14. The helicopter was first test flown by the Army on
- A. *May 6, 1941*
- B. *Nov. 19, 1942*
- C. *Dec. 18, 1922*
- D. *Mar. 12, 1938*

15. Where is headquarters of the 16th Air Force located?

16. All turret guns on the B-29 are fired by remote control.
- A. *True*
- B. *False*

17. What have Aparri, Vigan and Legaspi in common?

18. If you are riding the Fireball, you are
- A. *In a four-engine German plane.*
- B. *Traveling in an ATC plane*
- C. *Piloting our new jet-propelled aircraft*
- D. *Flying in a B-17 equipped with fire bombs*

19. The commanding general of the 9th Air Force is
- A. *Lt. Gen. Lewis H. Brereton*
- B. *Maj. Gen. Hoyt S. Vandenberg*
- C. *Lt. Gen. Millard F. Harmon*
- D. *Maj. Gen. Curtis E. LeMay*

20. Identify this plane ↓

Rendezvous

(Continued from Page 3)

tion of Air Forces Women may be worn by all of its members. Membership is open to any wife, mother, widow, daughter or sister of an AAF man (flying or ground personnel), who is or has been on active duty, or any woman member of the armed forces attached to the AAF.—Ed.

"Rocketry"

Dear Editor:

As a longstanding and ardent proponent of rocketry, I must protest the wording in an article appearing in the November issue of AIR FORCE.

On Page 21 occurs the following statement: "In contrast to the rocket type 163, the 262 is a true jet propelled fighter . . ."

Why, I ask you, is a turbo-jet reaction engine a "true" reaction unit and a self sufficient rocket unit not?

In the light of my six years' experience with reaction units, I would be more inclined to call the liquid fuel rocket—oxygen and gasoline—a "true" jet propulsion unit for it is a self-sufficient entity, carrying not only its own fuel but also the oxygen necessary for combustion; whereas the turbo-jet unit relies on a gas turbine for extracting the oxygen (air) from the atmosphere.

Needless to add, both the rocket and the turbo-jet engine are "true" jet propulsion units.

A/C Robert M. Gordon, Chandler, Ariz.

You are correct. But while we're on the subject of correct wording, where did you find the term rocketry? It's not in our dictionary.—Ed.

Something to Give

Dear Editor:

Yesterday I read of the nation-wide appeal by the Army and Navy for a heavier contribution to the blood banks. It was prompted by the article in Stars and Stripes, published in France.

As long as I have been in the armed service, I have never been included in one drive for blood from the fellows still safely resting in these United States. Why not again, and again and again? Surely a request for blood from us fellows who are waiting in schools and training centers will be heeded with enthusiasm. It will relieve somewhat the incessant demand on our families and, perhaps, be to our advantage when we find ourselves in want of blood over there.

AIR FORCE asks for suggestions, and I believe none could be more successful, more encouraging to the guys over there, or more easily accomplished than a drive throughout the states for donations from the boys who have nothing more to give to date than six hours of school. I pass this suggestion on to you for a thought.

Pfc. Dan Summers, Chanute Field, Ill.

You are absolutely right. More of us stationed at home should contribute. To become a donor, contact The Red Cross.—Ed.

(Continued on Page 52)

technique

Development, Maintenance and Supply of Aircraft and Equipment

Propeller anti-icing test—See Page 46

Aerial Photos at Night

Using a camera-flash system which produces light equal to four million 40-watt bulbs, photo-recon planes now make low-altitude pictures of enemy installations at night without use of parachute flares or flash bombs.

In the new equipment developed by Dr. Harold Edgerton of the Massachusetts Institute of Technology, and the ATSC's photographic laboratory, the camera shutter is synchronized with the flash assembly so that each picture is snapped at the very instant the sun-like brilliance of the flashbulb reaches greatest intensity. Best pictures are taken at low altitudes, although addition of more condensers and reflectors foreshadows the perfection of the technique at altitudes above normal effectiveness of light flak. Additional refinements are also expected to increase the area of the present cone of illumination by about four times.

Major disadvantages of the M-46 flash-bomb method were that the number of pictures that could be taken on one mission was limited by bomb bay capacity and that consecutive, overlapping photos were almost impossible to obtain below 5,000 feet because the flash-bomb drifted far behind the plane before exposures could be made. With the Edgerton system, however, hundreds of consecutive shots may be taken simply by turning the film and "firing" the Xenon gas tube. The process is similar to the operation of newspaper flash-gun cameras, with the important exception that a single bulb lasts for several hundred flashes and does not have to be replaced after every picture.

Included in the unit (Type D-2) are the camera, flash assembly and control box.

The camera is a K-29 type modified from a K-17B. It has a 24-inch focal length with a 12-inch, f2.5 lens. The magazine uses high-speed roll film (Class N) 150 feet long and can take a whole roll of 200 individual exposures in less than seven minutes, or one photograph every few seconds.

To charge the lamp, the flash assembly's six condensers, two inverters, a transformer and a rectifier, boost the plane's 24-volt DC electrical system to 4,000 volts. The actual flash comes from a quartz helix flash tube when the stored electrical energy is discharged through the rare Xenon gas. Krypton, Argon and Neon gases may also be used, but Xenon gives the whitest light, most desirable for photography. The bulb fits in a large parabole-shaped reflector, 30 inches in diameter and 2 feet deep, which is spun in two sections of specially treated aluminum to produce a smooth, mirror-like surface.

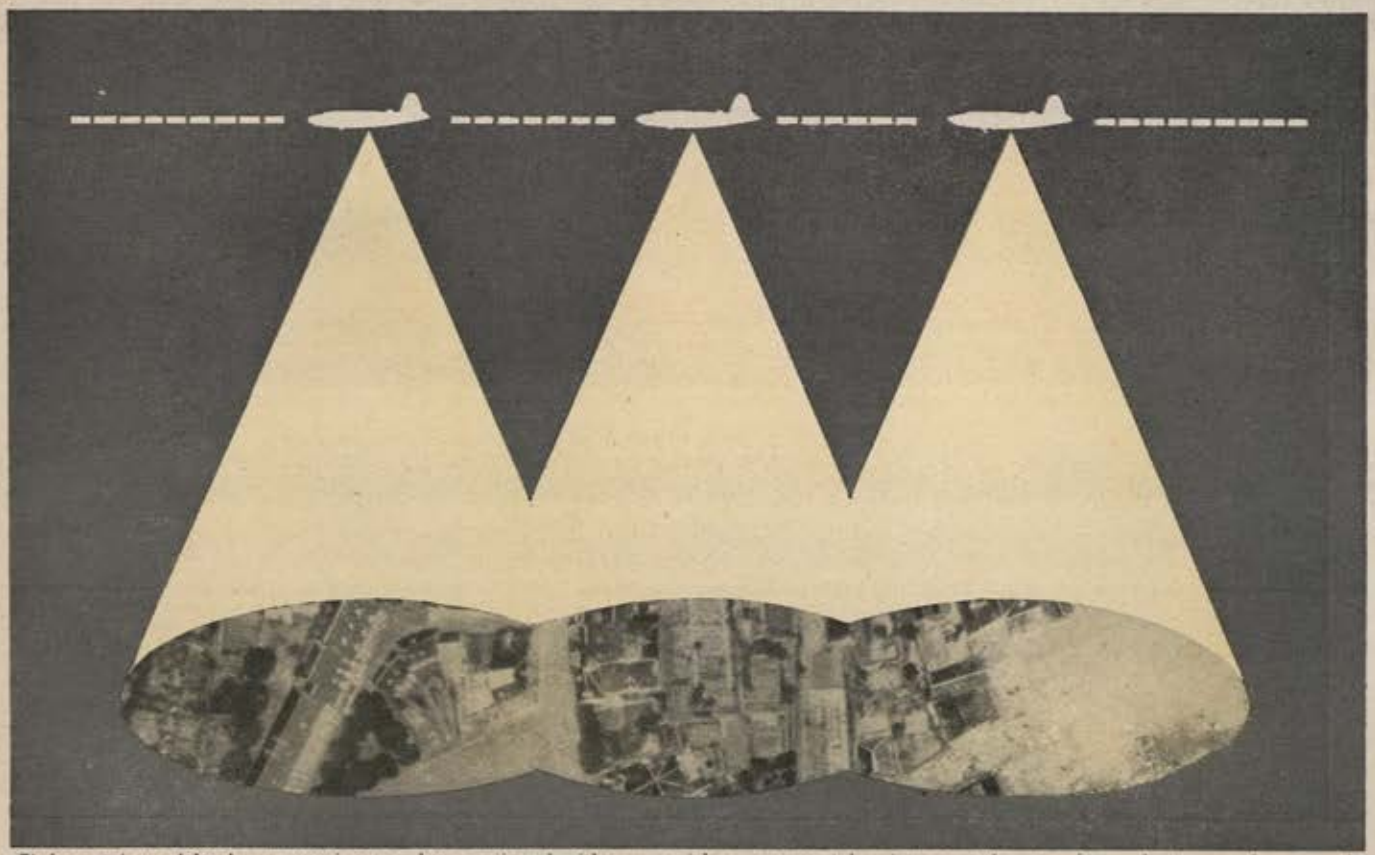
The remote control box can be located anywhere in the plane, permitting operation by pilot, bombardier or any other crew member.

The camera unit has an overall weight of 460 pounds and is suspended by a bomb shackle from a standard bomb rack, which makes it readily jettisonable in an emergency. Waterproofed for use in the humid tropics, it performs efficiently in arctic regions or in desert areas.

Flying Tankers

To get more fuel to B-29s in China, B-24s have been modified as fuel-carrying cargo craft with an overall capacity of 2,900 gallons—almost half again the amount loaded into the Army's large gasoline trailer trucks.

Redesignated as C-109s, two of these "flying tankers" can fly enough gasoline to China—in addition to the supply needed for their round trip over the Hump—to gas up a B-29 for a raid over Japan. Taking off from India once a day, 10 such cargo craft are able to



Flying at low altitude, reconnaissance plane equipped with new aerial camera can take pictures at the rate of one photo every few seconds.

furnish Superfortress bases with 1,200 gallons every hour.

To load and unload the C-109, standard gasoline transfer systems are employed, with nose tank and three deck tanks operating from one pump, and bomb bay tanks from another. A hose which fits into the side of the plane like a coupling joint on a fire plug permits gas to be pumped into any type of large container.

All-metal bomb bay tanks were especially designed, since regular types were non-metallic and excessively heavy. Deck tanks also were tailor-made, incorporating specific shapes to fit the turtle-back fuselage contour over the B-24 bomb bay. Metal bands with felt padding hold tanks in place and dampen vibration.

As a safety measure for the crew, an internal electrical system is automatically rendered inoperable during loading and transferring operations. "No smoking" rules are rigidly enforced, and static discharge lines ground accumulated electricity when the plane is on the airstrip. To eliminate gas fumes from half-empty tanks, inert gas is injected as fuel is pumped out, thus reducing the danger of explosions from sparks or strafing attacks by enemy planes.

Rescue Entries Marked

Crash crews working at airplane accident scenes are often handicapped in attempts to rescue trapped airmen because they do not know on what parts of the fuselage forcible entries may be created without encountering fuel and hydraulic lines, strong extruded members and heavy bulkheads. To designate areas on multi-engined metal aircraft (except fighters) where such emergency entrances may be effected, the office of the Assistant Chief of Air Staff, Materiel and Services, has directed the ATSC to publish technical orders to provide for marking safe cutting spaces, exclusive of regular doors and escape hatches. Each corner of the skin section so prescribed will be clearly labeled "Cut Here for Emergency Rescue," while doors and hatches will be marked on the outside of supporting structures so they may be cut out if they become jammed. By such quick access to casualties, many lives may be saved.

New Hydraulic Pumps

A new hydraulic pump, recently put into production principally for large planes in the B-29 class, now develops double the 1,500 pounds maximum pressure of present geared-type pumps. Designated as Type B-21, the pump

tech topics . . . about aircraft and equipment

A special flight engineer's panel for B-29s will be used for training engineers in handling the galaxy of instruments that are required for operation of the big bomber. A detailed model of the fuel injection system equipped with clear plastic covers permits observation of the component parts and their functions, helps to familiarize maintenance men with the new system.

New flight instruments have been developed for the helicopter. Special gauges to record forward, backward and lateral motions of the craft and airspeed indicators to show zero and reverse speeds have been perfected by instrument engineers.

The XR-6 helicopter has redesigned engine cowlings that improve oil cooling systems. . . . The Army also is running tests on a new helicopter which is shaped like a jelly fish. Its two rotors rest in the same plane and intermesh with each other like gears. Flight is reportedly "very smooth." . . . Future helicopters may have all-metal rotor blades, now being tested. New helicopters will incorporate an automatic pitch reduction system. The mechanism operates in response to engine speeds, the pitch of the rotor blades being decreased when the engine drops below a predetermined speed.

Because high pressure oxygen cylinders must be handled with extreme care while loading them aboard a plane, a low-slung, three-wheeled platform with twin clamps to keep the cylinder in place has been designed. The carriages, known as "oxygen trolleys," are hooked together in train fashion so they can be hauled around an airdrome to planes needing refills.

To hold shoes on paratroopers against impact forces of chute openings, a wide strap has been adapted for type A-6 shoes. . . . Engineers at M.I.T. have developed a delicate shock recorder for measuring "jerk" pressures on parachute suspension lines. Some twenty-odd paratroopers in combat areas are trying out a new triangular parachute that will be lighter and more compact than present types.

Use of slow-flying planes over friendly territory may permit dropping of supplies without parachutes. Food stuffs packed in ordinary sugar sacks, one inside the other, have been satisfactorily dropped in free fall from an altitude of 1,000 feet at speeds up to 125 mph. . . . An automatic interlock switch that prevents operation unless intercom systems are plugged in, has been added as a safety device for personnel in centrifuge tests which determine reaction to centrifugal forces.

The Cockpit Coordinator, a development of ATC, expedites the reading of a pilot's check list. The device consists of a long strip on which are printed all necessary operations for take-off, flight, landing and emergency procedures. Mounted on two small rollers, the strip may be turned quickly to any section desired. The entire instrument is encased in a plastic box with a transparent window. . . . The Cruising Guide is another aid for pilots. Specially prepared charts fit into a pocketbook-size container which can be used like a slide rule. By manipulating the cards or charts, figures appear in small transparent windows that tell proper IAS, manifold pressure, fuel consumption and range for every type of plane.

An improved type of switch box regulates the exterior lighting system on some planes. Producing 81 different combinations of white, green, red and amber landing lights, the new box permits a highly efficient system of identification codes.

A tiny, red lamp on the pilot's instrument panel and a siren-like horn, both controlled by an automatic smoke detector, are parts of a new system to warn pilots and crews of interior aircraft fires. Smoke particles mixed with a steady airstream in a small box chemically actuate the fire-warning mechanism.

Modified so that it can use the 48-inch Eastman lens for 9 x 18 size negatives, the K-18 camera now incorporates the new louvre-type shutter. A stronger flange for the lens replaces present threaded brass flange and special baffles distribute warm air used for heating camera at high altitudes. . . . A special chemical is being used to save approximately $2,000,000 worth of fogged photographic paper once slated for salvage and disposal at various AAF depots the world over.

maintenance tips . . .

from the crew chief's stand

"The Benevolent and Protective Order of Mechanics Who Have Invented Tire Removing Appliances" is getting to be something of an institution. But if you're not ready for an institution—yet—your attention is called to the standard S-1 lever airplane tire removal kit, carried under Class 17-D, stock No. 7900-469670. Distribution has been made on the basis of

three to administrative squadrons, two to repair depot squadrons and one to tactical squadrons. The tools are made to handle tires from 26 inches to 56 inches. If kit instructions are followed, tire beads vulcanized to rims can be broken loose quickly and without damage. For added information, see TO 04-10-1, dated 1 September 1944.

Taking the measure of cylinder-head temperatures accurately is now simplified by a long-life bayonet thermocouple installed in a boss on cylinder heads of R-2800C, R-4360 and R-3350BB engines. An engine equipped with this new thermocouple may be installed in airplanes without rewiring or changing the indicating instrument.

Don't blame the gremlins when airplane wheels stick to a snow or ice-covered surface. After standing a while, the plane may be hard to move, with the possibility of real injury to rubber tires. When freezing is anticipated place a length of fabric, some straw or even leaves and twigs under the wheels, so they won't adhere to the ground.

Something to remember in cold weather, is that gasoline spilled on hands in subzero temperatures has the same effect as liquid air, and will freeze the flesh a few seconds after contact. Be especially careful in gassing up or fuel transfer operations, and for wiping off or cleaning jobs, use alcohol instead.

Tech orders are like parachutes; they have to be opened to be any good. And to make the process easier for men in the field, ATSC form 65-507 (formerly 3070) has been expanded, providing space to list requirements for basic handbooks in 01 and 02 series separately from short TOs in the same sub-series. The change also applies to TOs in 03-10B, sub-series C and 09, and Inspection and Maintenance Guides. Complete instructions are contained in a letter and explanation sheet, distributed in TO shipments. The reference for the new plan, which used to be TO 00-25-3, is now TO 00-5-2.

Right news for tight screws comes in the form of a loosening gadget that operates like a ratchet-action screwdriver with a bit that is rotated by a hammer or mallet blow. When screws, bolts and nuts seize because of high torque or corrosion, you simply whack the end of the handle with enough force to set the stubborn screw in motion. The tool has been standardized for addition to kits and sets of the 00-30 tech order series. Official name is Screw Loosener, Impact Driven, AAF Stock Catalog Spec. No. 7900-426700.

If you're an instrument specialist, you may think of an airplane as a cockpit panel with wings, engine and fuselage attached. This means that you undoubtedly will take a good look at the luminescent paint used in the new standardized instrument dial markings. The latest fluorescent lacquer (Spec. No. AN-L-13A) has approximately the same brightness as the old material (TT-R-58) under violet light and in the dark, but its drop in intensity when cockpit lights are turned off affords instantaneous blackout of all dials, whereas the other dropped gradually over a period of hours. For nonessential flight instru-

ments, however, and for all night fighter instruments, paint AN-L-1A is used. This has no self-luminous property, showing only when under ultraviolet light.

In general, use of luminescent material has been reduced to cardinal increment markings, with non-luminous Munsell green paint used for all other graduations.

can produce a pressure output equivalent to 9½ horsepower. It consists of nine pistons mounted on a circular cam plate and held in place by small springs. Check valves for each piston absorb shock caused by air which sometimes forms in the fluid lines.

The pump weighs about 6½ pounds and is mounted on the engine accessories pad for use with any conventional aircraft engine.

De-Icing Propellers

For the past two and one-half years, protection of propellers against icing conditions has been a major consideration for military aircraft that must fly through severe icing weather.

To break off ice from propeller blades without decreasing efficiency and heightening vibration due to unbalance, Wright Field's Propeller Laboratory engineers are perfecting methods of "mushing" the inner layer so that the loosened mass may be thrown off by centrifugal force. So far, the ice-preventive systems under development include a fluid anti-freeze, a surface compound, an electrical thermal unit and a hot air system which circulates warm air through hollow props.

The fluid method employs Iso-Propyl alcohol, which passes through discharge tubes to the leading edges of the propeller blades and tends to reduce adhesion of ice to metal. A small tank, filled with enough of the chemical to last several hours, stores the anti-freeze until it is hydraulically pumped to a slinger ring around the propeller hub. This method is considered moderately effective for the protection of small diameter props (approximately 12 feet) but is limited to non-combat aircraft.

The surface compound is hand-brushed over the blades and acts as a freezing-point depressant by providing a flexible skin finish that resists adherence of ice particles and causes them to be readily hurled off the whirling propeller. The substance has a duration of approximately three and one-half hours under icing conditions, after which it loses its chemical potency. It is non-inflammable, and may be combined with the fluid described above for multiple protection on long range missions. However, it has the disadvantage of lowering propeller performance, and for this reason is not recommended for fighter planes.

The electrical thermal method, now being tried experimentally, uses a special rubber heating element, or a high resistance alloy which is cemented to the leading edge of each propeller blade.

Ice formations on propellers pose a problem for ATSC engineers, who must eliminate such conditions without impairing prop efficiency.

Power is taken from the airplane's main electrical system or from a small hub-mounted generator, and de-icing is accomplished when current flows continuously to provide constant heat in the rubber or metal covering. By another method, current may flow intermittently into the thermal pad to loosen the ice layer as it builds up. However, the continuous flow procedure is being tested at Ladd Field, Fairbanks, Alaska, on a specially equipped C-54, and with minor modifications it is anticipated that this system can be incorporated in all existing types of service aircraft.

The hot air solution to the de-icing problem is still in the development stage, and requires a revised construction to strengthen parts of the propeller shank around the oval-shaped holes through which the heated air passes. Hot air enters these holes from a combustion heater mounted on the engine, and leaves through other openings near the tip. In principle, it is similar to heated wing installations, but is adaptable only to hollow blade propellers.

Early tests with anti-icing compounds were run on the whirl test rig at Wright Field as shown on the Technique cover photo. The towering test stand shown in the picture has a 2,000-horsepower electric motor that can whirl blades up to an arc 40 feet in diameter. For this particular test, run in sub-freezing temperatures, each of the blades was painted with a different anti-icing compound, and the six-bladed club propeller was rotated at 1,000 rpm while water was sprayed against it, forming ice particles. Only one of the compounds used was successful, but the test results led to the development of some of the de-icing methods now in use.

Control Aids for B-24

A Liberator was nosing into the air after take-off when failure occurred in one of the outboard engines. The plane lost directional control and, before the pilot was able to compensate with rudder trim tab for three-engine operation, the B-24 crashed.

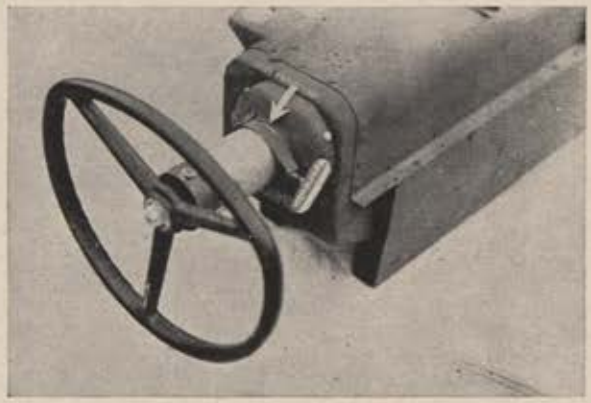
Investigation revealed that when outboard engine cut-out occurs at low altitudes, present-type rudder tab hand knobs cannot be rotated quickly enough to prevent loss of directional balance—especially if the pilot's hand is perspiring or if the system is unusually stiff.

Under the guidance of Maj. Joseph McKeown, ATC's test unit in Florida went to work on the problem and devised a crank control which provides instantaneous tab action by means of crank leverage and free-spinning knob. The device has been recommended for installation on all B-24s and C-87s.

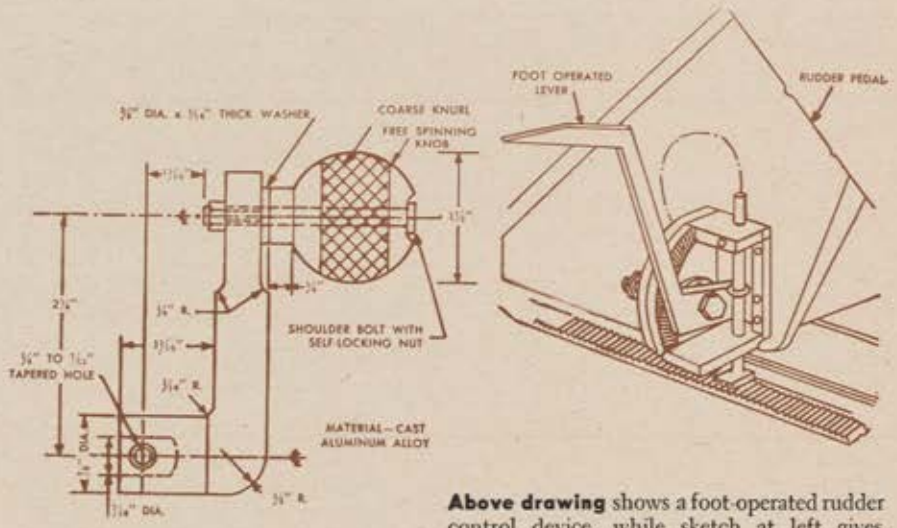
Other safety appliances for Liberator controls are two simple but vital devices which effectively lock rudder, elevators and ailerons during conditions when control surfaces are so badly shot up that the plane can only be flown by the physical effort of holding controls in an abnormal position, preventing the pilot from leaving the controls in order to bail out.

The lock for elevators and ailerons consists of a hose clamp (FB No. 60) 2¾ inches in diameter, riveted to the roller cover. When pilot has plane under control, he can tighten clamp, which has withstood the pull of two men in tests.

To lock the rudder, a positive foot-



At left, arrow points to the emergency clamp on Liberator control wheel which enables pilot to lock the elevators and ailerons when control surfaces are damaged.



Above drawing shows a foot-operated rudder control device, while sketch at left gives details of knob for quick trim tab control.

operated control has been perfected, which locks rudder pedal while in flight. It was conceived by Lt. Col. Charles Mixter in cooperation with Lt. Col. Maurice Walsh. The design of this control and the elevator-aileron lock was accomplished by Capt. Reuben Yarri and men of the 29th Service Group of the 13th Air Force.

What's New in Radio

When radio equipment went to war in Army aircraft, it soon became apparent that the change from civilian status had been too sudden and that many adjustments would have to be made before it could achieve its full military value.

Today, most of the early difficulties have been smoothed out, and new technical discoveries are constantly being added to modification kits for rush shipment to combat theaters. Among new developments in AAF radio equipment are an air-to-air communications system that works practically automatically, a new liaison transmitter for air-to-ground operation, an interphone system that does not fail at high altitudes, improved antennae, effective techniques for noise elimination, and a radio marker buoy for indicating the position of survivors at sea.

In the older sets, the radio signals would fade as a plane gained altitude. Then, on descent, audio output would increase so rapidly that eardrums would be jolted unless the radio operator frequently cut down on the volume. With the latest command set for air-to-air communication between planes of a formation, however, frequencies are preset on the ground and the radio operator simply selects the channel he desires to use. The receiver then automatically picks out the frequency and tunes it in without any dial-twisting.

For plane-to-ground communication, a new liaison transmitter with an effective range of 600 to 1,000 miles, depending upon proper frequency selection, has been standardized and is now ready for installation in Army planes.

It is 100 pounds lighter than the existing BC-375 and is consolidated into one unit, plus the dynamotor, with preset channels in the high frequency band. Like the air-to-air set, selection of each channel is accomplished automatically, requiring approximately 25 seconds. Manual frequency selection may also be made without interfering with the pre-set channels. The equipment will operate reliably at levels up to 40,000 feet, and provision has been made for continuous wave (cw), modulated continuous wave (mcw) or voice emission. Operation is so simple that the pilot or copilot can operate the set by a remote control unit installed in the cockpit.

Radio mechs change loop antenna to smaller size in streamlined housing. Antenna shown in foreground had created excessive drag.

To eliminate the bugs in interphone systems, the ATSC's radio laboratories, in cooperation with the Psycho-Acoustic Laboratory of Harvard University and the Proving Ground Command at Eglin Field, Fla., embarked on an extensive program of investigation which culminated in the development of a new interphone amplifier. To reduce high altitude failures, this new amplifier has increased sensitivity which compensates for low microphone output in upper air. It also has a three-step volume control which modulates the increased power output capacity of the amplifier in order to overcome the reduced sensitivity of headsets in high flying.

Research and tests with untried materials have also led to the development of a VHF vertical antenna formed of streamlined compregwood with a metal plating. This antenna is able to withstand icing and acceleration loads, reduces drag, minimizes effect of excessive precipitation static, and picks up and radiates low frequency waves more effectively. In cases where trailing wire antennae are used, a motor-driven reel now winds things up neatly for the radio operator, without his having to crank the reel manually. The function can be performed remotely, permitting installation of the equipment in less crowded portions of the plane.

Work on noise elimination methods has resulted in the perfection of several systems which greatly curtail the trouble-making potential of undesirable sounds. By using a "probe antenna," technical engineers locate sources of noise in loose metal or electrical connections, faulty ignition and elsewhere, and "dampen" out the interference. Precipitation static, which is caused by the passage of rain, snow, ice or dust over the metal skin of the plane and which often makes proper radio reception impossible, is now considerably reduced by a static discharging device in the form of a Prestone-filled tube with a trailing wick. Riveted to the outside covering of the fuselage, the device prevents electrical charges from building up on the aircraft by emitting a constant flow of the accumulated charges. This device is now being superseded by a dry-type discharger, which does away with the use of a fluid.

Portable transmitters and receivers have been put to many uses, but one of their most recent jobs is as marker buoys for indicating the position of survivors at sea. Parachuted into the water from a plane, transmission of a coded, repetitive distress signal begins as soon as the buoy strikes the surface. The beam is sent out continuously for twelve hours, and ships and planes can be guided to the buoy by means of their radio compasses. After its operating period ends, a soluble plug dissolves, the buoy fills with water and sinks.

The hub of these and other radio developments for the AAF are the radio laboratories at Wright Field. There, products of research laboratories, URs and special requests from theater Air Forces are brought together for study, test, modification and design.

Air Position Indicator

A navigational aid which provides instantaneous indication of latitude and longitude of air position, air miles flown and true heading, all on the face of a single dial, now frees navigators from previous time-consuming dead reckoning operations.

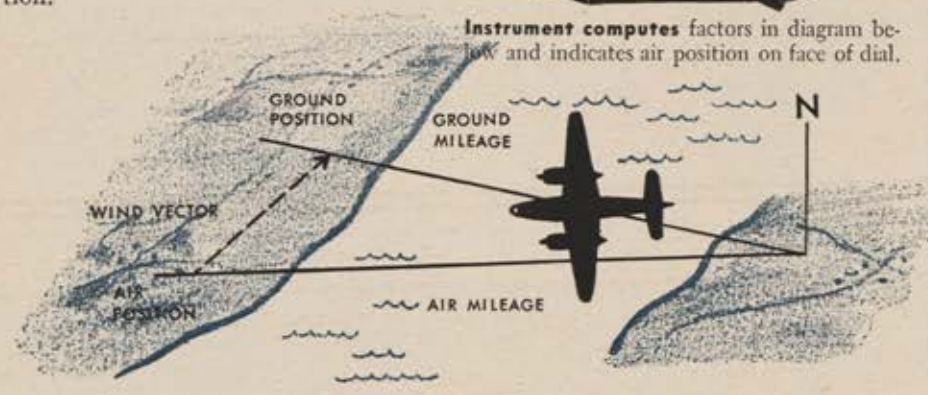
The API system includes an air mileage pump, control unit, amplifier and computer, as well as a remote reading compass, either gyro-fluxgate or magnesyn. Driven by a small motor, the pump generates differential pressure to the computer by means of rotor having a speed proportional to the true airspeed of the plane. Two diaphragms in the control unit regulate the speed of the air mileage pump, while special vents in the side of the fuselage permit cooling to avoid temperature errors. Meanwhile, the amplifier electrically

converts compass signals for the positioning computer, which automatically calculates compass data and true airspeed readings into the desired latitude and longitude for indicating air position.

The API permits the navigator to leave his station for emergency duties elsewhere in the plane, with every confidence that when he returns to his charts he will have reliable data available. The instrument remains accurate even during violent evasive action.

The installation is limited to B-29s and other large aircraft, but experiments are continuing for fighter adaptation.

Instrument computes factors in diagram below and indicates air position on face of dial.

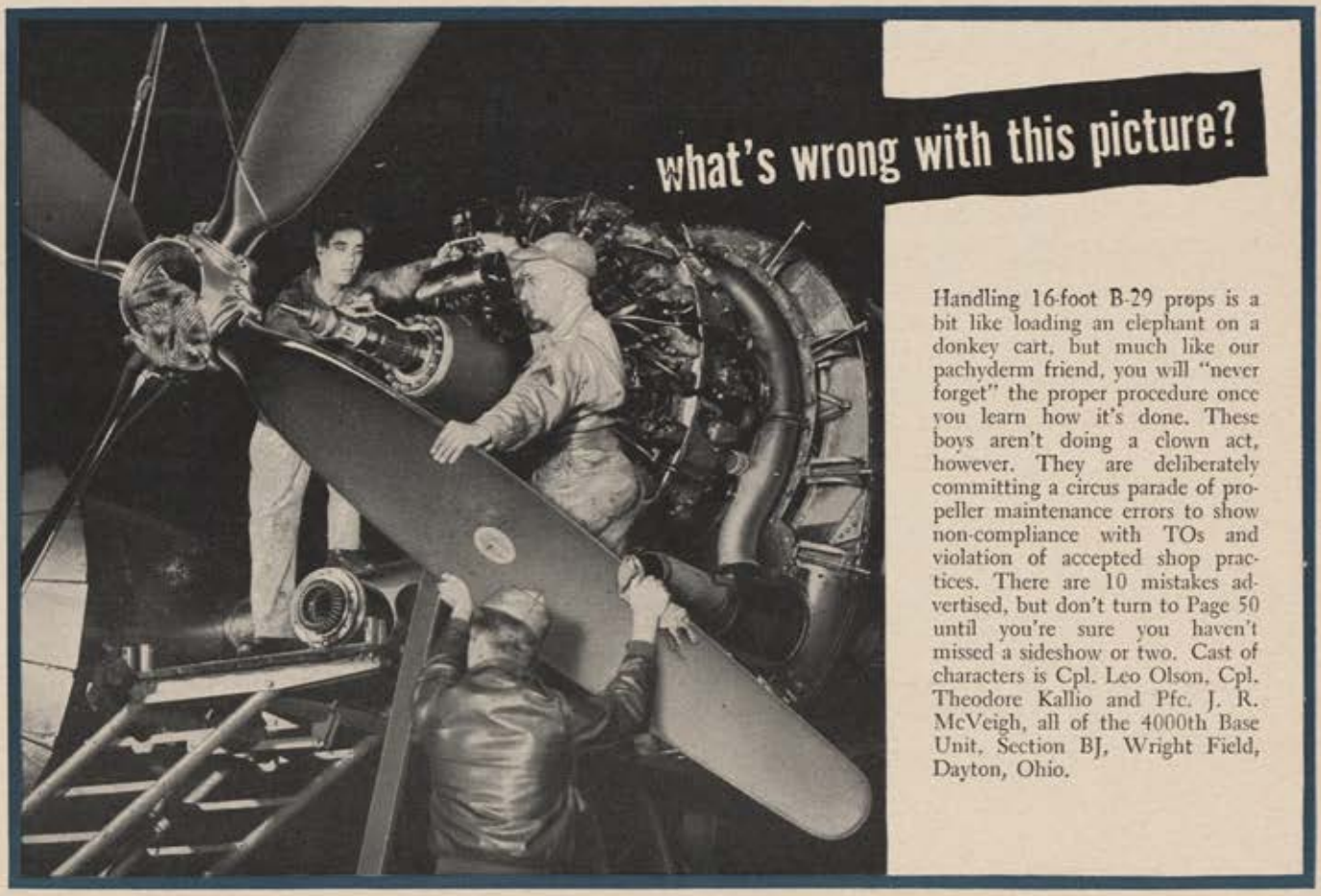


Battle Laboratory

Combat units of the 8th Air Force, seeking a solution on the ground to problems that develop in the sky, bring their troubles to the 8th's Maintenance and Technical Services Section for expert assistance in de-bugging difficulties and revising operational techniques and procedures.

Recently, an epidemic of top turret fires resulted in loss of valuable bombers and crewmen and focused attention on fact that chief source of trouble was the gunner's oxygen line running through the bearing on which the turret revolved. Analyzing the situation, the section modified available parts to devise a shut-off valve with which the pilot or copilot could cut the oxygen supply to the top turret in event of a blaze. The design, distributed to units for immediate installation, is directly credited with saving at least 11 B-17s in which such fires occurred.

In another instance, the generator drive shafts on heavy bombers were proving defective, one bomber group alone reporting more than 100 failures in a single month. Investigation showed that not only was a mechanical



what's wrong with this picture?

Handling 16-foot B-29 props is a bit like loading an elephant on a donkey cart, but much like our pachyderm friend, you will "never forget" the proper procedure once you learn how it's done. These boys aren't doing a clown act, however. They are deliberately committing a circus parade of propeller maintenance errors to show non-compliance with TOs and violation of accepted shop practices. There are 10 mistakes advertised, but don't turn to Page 50 until you're sure you haven't missed a sideshow or two. Cast of characters is Cpl. Leo Olson, Cpl. Theodore Kallio and Pfc. J. R. McVeigh, all of the 4000th Base Unit, Section BJ, Wright Field, Dayton, Ohio.

P-51 with two 108-gallon droppable fuel tanks made of paper and externally hung, has all Germany within range.

adjustment necessary, but that related equipment had been affecting generators adversely. Within six weeks, tests were completed and recommendations made. During the following month, only one failure was reported.

Among important projects undertaken recently has been the job of equipping fighters with droppable tanks to enable them to escort bombers on long-range missions. Experiments were conducted with more than a score of different external fuel tank installations before high altitude pressurization problems and other kinks could be eliminated. Finally, a container, made of stressed paper covered with doped fabric, was approved for local manufacture, with the result that no enemy target in Europe is now safe from fighter-escorted heavy bombers.

Other contributions the section has made toward tactical efficiency include adaptation of a British bombardment compensating sight for fighter use, refinement of target marking and control methods for bombing in cooperation with ground troops, and extensive advances in sky signalling with chemical smokes. Officers and GIs are also encouraged to submit ideas and suggestions, and currently approved devices include a crank adapter for emergency operation of B-17 landing gear, a modification for interphone amplifiers, an improved carbon dioxide release cable for life rafts and a centralized oxygen warning system which tells the pilot whether all crew positions are receiving oxygen.

The section is in charge of Cols. Ben S. Kelsey and Cass S. Hough.

Camera Gun for Crew Training

Among the newer wrinkles in B-17 gunnery training is a camera mounted on a machine gun, which enables crewmen to shoot pictures instead of bullets at simulated attacking fighters. At Avon Park (Fla.) Army Air Field, where one of the units is installed, every trainee shoots 200 feet of film at moving targets during four "gunnery missions." After the film is processed, gunners assemble in a projecting room

This camera mounted on machine gun enables gunnery trainees to shoot pictures instead of bullets. The targets shown are realistic models of enemy fighter planes.

WHAT'S WRONG with the picture on page 49

1. You don't put on your shoes before your socks do you? B-29 props and ring cowls have the same relationship. If you install the prop first, you can't get the cowl in place.

2. The man on the left blissfully oiling the rear cone will be looking for the chaplain when the thin film of lubricant disappears, the cone becomes loosened and the propeller starts vibrating. Here's the recommended procedure: Coat the spider splines lightly instead of the shaft splines to prevent oil from touching the rear cone when the prop is installed because oil will gall the cone and cone seat.

3. That do-or-die grip the two men on the stand are maintaining on the pressurized lead to the magneto distributor, will end in a double handful of trouble. Fittings will be loosened in this way, causing leaks.

4. The distributor valve will be violently distributed if it's left installed when the prop slides over the shaft. TO 03-20CC-1 says remove it to prevent damage.

5. Thread protector on end of shaft is missing in action. When prop slides over the shaft, those delicate threads will be scraped and marred, and the entire shaft will have to be replaced.

6. That's $400 worth of footstool the man with the oil can is standing on. One slight push and he'll sign a statement of charges for a new propeller dome.

7. Obviously, Maggie's drawers don't belong in the prop's outboard barrel half. It seems too big to be overlooked, doesn't it? However, inspections of failing propellers have yielded small pieces of cloth inside the dome that evidently were unnoticed during installation.

8. Uplift movements are OK in their place, but hoisting with a cable will make dents and nicks and set up stress concentration, causing prop failure. Canvas sling, stock No. 8200-855558, is the correct item to use.

9. If our friend in the foreground has his eyes open, he'll see that four-inch strips of yellow aren't painted on the tips of the propeller blades, as directed in TOs 07-1-1 and 03-20CC-1. It's a safety feature.

10. Blades look mighty bare without reference data. TO 03-20CC-1 says the drawing number, serial number and etched date *must* appear on each blade.

where veteran combat instructors point out the good and bad points of the aiming and firing.

Automatic Cargo Chute Release

Paratroopers or other personnel being supplied by air no longer need to struggle with manual release mechanisms to free cargo chutes from containers—or, for that matter, leg it over the landscape in hot pursuit of supply chutes that high winds drag along the ground. A new automatic ground release developed by the ATSC Personal Equipment Laboratory and soon to be standardized, snaps open to free the container as soon as it hits the ground, thus saving valuable time in emergency situations.

The device works on the same principle as a gravity spring scale, serving as a connecting link between chute and container, and using a hydraulic cylinder and piston to absorb the slack, or "no load" period which occurs for an instant after the chute whips open. While descending, the weight of cargo holds hooks in place but on striking the ground, the hooks spring open, releasing the chute.

Gun Turret Test Chamber

To determine mechanical defects in the feeding, firing and ejection systems of four-gun Sperry lower ball turrets, the unit is mounted on the platform of a 30-ton welding jig in Wright Field's 30-foot square firing chamber. For endurance firing tests, 5,000 rounds per gun are shot at short range into the walls of the chamber, which are constructed of 12-inch thick oak planking backed up by solidly packed gravel four feet deep. Empty shell cases which pop out and fall to the floor sometimes are ankle-deep after a full firing run. The small chamber eliminates the need for a large gun range and an electric welding jig turns it to right or left to simulate angles and attitudes of flight. Two large fans circulate 10,000 cubic feet of fresh air per minute, keeping room free of carbon monoxide fumes.

Rubber Caps for Guns

Small, synthetic rubber caps that fit over the muzzle end of .50 caliber machine guns, eliminate the necessity for taping guns to keep moisture out of barrels. Designed to afford protection from inclement weather in the air as well as on the ground, caps are not removed before missions. The first gun burst pierces the cap without affecting the gunner's aim. ☆

on the line

with mechs around the world

Men upstairs breathe oxygen out of tanks. Men on the ground have to put it back in. It sounds very simple—except when you're in the jungles of New Guinea and demand exceeds supply.

The only alternative is portable generators, and although these units were not designed to support large-scale, high-altitude operations, they have been made to do so by T/Sgt. Walter Cox and his crew of the 5th Air Force Service Command. Output of one plant alone was boosted from 10 to 70 cylinders a day, and a record month's production of three such jungle installations was 4,013 cylinders, or 802,000 cubic feet of oxygen.

To achieve these results, several modifications had to be made. There are two compressors in each portable unit, one for air and another for oxygen. During the process of compressing air, cooling it down to liquid form, and obtaining oxygen by fractional distillation, these compressors are often used on air. This induces a high back pressure which forces small amounts of oil into the oxygen compressor. When switched back to oxygen compression, the oil-oxygen mixture, plus the heat created, will blow up the plant.

Sergeant Cox and his men eliminated this danger by combining two units—using both compressors of one machine for air and a single compressor of the second for oxygen, with the remaining compressor left as a standby. The problem of engine overheating was solved by building a new, external-pressure cooling system, using de-mineralized stream water, obtained by precipitation of potassium hydroxide, as a substitute for the distilled water normally employed for compressor lubrication. Stops for refueling were cut by improvising larger tanks from spare bomb bay tanks. "But don't use leaded gasoline," cautions Sergeant Cox.

Straight from France comes the tale of three long-lived ladies of the air—Mustang fighters of a 19th Tactical Air Command base—who have amassed the total of 1,175 combat hours between them.

"Margie Maru" is 125 missions old and is kept in trim by S/Sgt. Juventino Lopez, Laredo, Texas, and Sgt. Joseph Eichenlaub, St. Genevieve, Mo. Cpl. John J. Pallishuskey, Minersville, Pa., is her armorer.

The "Atlanta Peach" has performed 105 consecutive missions without once turning back from her objective—emphatic tribute to the skilled maintenance of S/Sgt. J. F. Randall, Vicki, Okla., and Cpl. Alvin C. Conti, Arnold, Pa. Cpl. Willis Windhorn services her guns.

One hundred and one missions were chalked up by "Suzy Belle" before she needed an engine change, so well have S/Sgt. James R. Long, Lockhart, Texas, and S/Sgt. Benjamin R. Luttrell, Roanoke, Texas, performed their duties. Suzy's armament is the specialty of Cpl. Robert E. Starkweather, Lockport, N. Y.

If life is calm and serene for radio repairmen of the CBI Air Service Command, their relative ease may be traced in large part to a compact, portable test set which T/Sgt. Harry H. Hughes, Long Beach, Calif., built so that aircraft radios might be tested without their removal from the plane. With two men, one inside the cockpit and the other on the ground, the radio receives an on-the-spot check without having to be moved.

Even the crew chief's stand comes under the eye of improvement-minded maintenance men, and Lt. Bernard Woods, assistant engineering officer at Walla Walla Army Air Field, Wash., has redesigned this foursquare "old reliable" to make it more efficient for varying conditions.

By reshaping the forward side to a half-hexagon form, the "A" frame used to change engines and props can be wheeled into position without moving the stand, saving time and affording better footing.

The stand has two platforms to permit simultaneous work at different levels, while a canvas hood is installed for bad weather duty. Three 8-inch casters with a towbar provide ready mobility.

Not so simple were the problems confronting 15th Air Force mechs in Italy when the difficulty of relieving electrical current drain from aircraft batteries already installed in planes, proved a serious challenge. But with the mobile drainage unit which M/Sgt. Raymond W. Ainsley, Casper, Wyo., devised in his free time out of unused scrap, the thorny task was considerably simplified. Mounted on a cart, this apparatus can be moved right up to battery installations where the necessary connections can be made.

Three Aids to Victory: Repair of battle-damaged bombers has been speeded at an air depot of the 8th Air Force Service Command in England by the invention of three tools by a former Philadelphia designer, M/Sgt. Joseph Pucci.

"The Mouse," a short-cut name for a short tool, is a pneumatic expanding bucking bar used on repair of wing spars, considered one of the toughest problems in aircraft maintenance.

Similarly, his hydraulic taper pin remover chopped labor time from several hours to a mere 20 minutes and his rivet remover allows 50 to 60 rivets to be extracted in the time formerly needed to remove only one.

The Intercom

As a medium for the exchange of ideas, AIR FORCE presents these answers to its Question of the Month. Replies are those of personnel stationed at Atlantic City, N. J.

QUESTION: Among your WAC associates, who has done the most for the war effort?

Cpl. Phyllis Jorgenson: "The platoon sergeant who drilled us at our basic training camp, Des Moines, Iowa, was one of the most unusual Wacs I have ever known. I know it is very unusual for enlisted personnel to appreciate the work done by a drill sergeant but we all felt that our introduction to the Army was made easier by our sergeant. She got the work done and, if you can imagine it in the Army, we actually enjoyed learning to drill. Teaching a lot of awkward girls the rudiments of right oblique and making us like it, was a difficult job."

Pfc. Marion Carlson: "The Wacs who are doing the best work are those who are trained in jobs where they can pass along their knowledge to men. I mean Link trainer operators, mechanics, statisticians and signal tower operators, to name just a few. They are discharging the function for which the WAC was originally formed—to release men for other duties or to help men make better use of their talents. I think the work they are doing is really appreciated—the men understand that we are all pitching in for the same purpose."

Pvt. Thelma Simonsen: "The Commanding Officer of our company at Oglethorpe, Ga., where we took our basic training, was doing very effective work and deserves my admiration. She had a very difficult job in orienting all of the girls to Army life. It is much more difficult for women to make the adjustment than men—we aren't as used to the idea of discipline. In six weeks, our CO really made soldiers out of us. I certainly wouldn't want to switch jobs with her. I think she has the most difficult job in the WAC, and is doing her part for the war."

Pfc. Ruth Bush: "We must not overlook those thousands of loyal and patriotic Wacs who are working in the offices and doing a job that has to be done. There is nothing glamorous about sitting in front of a typewriter all day or keeping records of clothing, but somebody has to do it. Most of those jobs are dull and monotonous, but if you put all such jobs together, the war probably couldn't get along without them. I think the unsung, unpublicized Wac who keeps at the seemingly unimportant job is doing the most for the war effort."

Pfc. Juanita Heinkel: "There were twelve of us Wacs who received Military Police training at Santa Monica. We were a little nervous at first, but this disappeared as we were taught Judo and trained to use .45s, carbines, and riot guns. We even carried clubs. The training we received was the same as that given to the men—and we were ready to do the same kind of job. Principally, we stood guard duty and checked uniforms and passes. We never had any trouble for the men learned to respect us and realize that we were doing a job."

Pvt. Marion Jenks: "I believe that the Wacs who are overseas are doing the best job. They are living under rough conditions and many of them are making real sacrifices. Of course, that is nothing when compared to what the men are going through but the Wacs who are serving overseas are sharing many of the same hardships. It's much easier for a man to acclimate himself to that kind of living but I think the Wacs have learned to take it too. All the Wacs I know who served overseas want to go back again as quickly as possible."

Rendezvous

(Continued from Page 42)

More Records

Dear Editor:

. . . The squadron I flew with in England flew 68 consecutive missions without losing a plane. This must be some sort of record when you consider the fact that this streak was started a few months before the invasion and included many long-range missions to the heart of Germany, many of them to Berlin. It was 36 when I left for home and reached this record mark sometime after the invasion. By the way, we flew B-24s.

Lt. William H. Hayden, Lincoln, Neb.

The Hot Side

Dear Editor:

Wait a minute, I object! I am referring to my November issue of AIR FORCE . . . Herbert Ringold had a very fine article on the delivering of planes to Russia, but where does he get this business "Some few planes were going to the Soviet Union—around Africa and up the Persian Gulf by boat and then overland across Iran—13,000 tortuous miles?" True, it was a tortuous trip, but this statement about "some few planes" is very misleading. The ferry route from Great Falls to Fairbanks is the cold side of the story. Here is the hot side: Abadan, Iran and thence to Russia.

Well, here is what it is like in Iran. First of all it is reputed to be the hottest spot on earth, and I believe it! The average temperature ran from 120 degrees to 140 and up every day. The official records show that one day we had a sun temperature of 180 degrees F. There was no moisture at all. As for the dust, it was awful. It is impossible to describe the dust storms that were encountered, but anyone who has been in one will never forget what it was like. The storms came up quicker than you could snap your fingers, and the only thing you could do if you were flying was pray your luck was good and that God was in Iran at that particular moment. We had no radio aside from the local tower, whose range was 25 miles, minus!

As for working conditions, from April until late in October the whole base would get up at 3 a. m., and be at work by 3:30 a.m. You couldn't touch an airplane at 10 o'clock in the morning unless you had a pair of gloves on. It was like putting your hand in a hot skillet if you did. All of the airplanes with inline engines had to be towed to the end of the runway before they were started, as even the short taxi distance would heat them up too much.

It was tough, damn tough, and I for one think that we deserve some credit for the work we did while we were over there.

1st Lt. John K. Troster,
San Bernardino, Calif.

According to ATC, more than half of all planes delivered to the USSR went via Alaska. But we agree that the boys in the Persian Gulf Area deserve plenty of credit. So do the sailors on the Murmansk run, for that matter, and anyone else who helped get U. S. planes into Soviet hands. —Ed.

(Continued on Page 60)

Aviation engineers fight heroically to stop B-29's flames from spreading to other planes. Bulldozer is ramming dirt over the fire.

Japs Strike Saipan

These photographs show what happened on November 27, when 16 ZEKES skimmed over Isley Field, Saipan, with their sights fixed on B-29s they found parked there. Three days before, the Superforts had dropped their first bombs on Tokyo and the Japs were desperately trying to head-off future attacks by hitting Saipan night after night. In return, we pounded the Jap base on Iwo, almost neutralizing it.

Foamite is sprayed on charred remains of Superfortress' big engines.

Not all Jap attacks are made by fighters. The photograph below was taken after a surprise high-altitude night raid by BETTY bombers that hit this Superfort dead-center. The Japs' bombs also fired a gasoline truck that may be seen blazing in the background.

Wrecked ZEKE being inspected is one of 13 destroyed during the Jap attack, six by Saipan-based fighters, seven by antiaircraft units.

THE CARE AND BRIEFING OF FIGHTER PILOTS

(*Continued from Page 11*)

scale contour maps which are invaluable in determining the best way to hit the target. For example, a mission which tries to climb a mountain right after the target is just inviting attention from flak.

Sometimes maps covering the route will prove inaccurate and inadequate, as when our group was assigned to lead a strafing mission against an enemy airdrome. In this case the sought-for information was obtained from Photo Freddie pilots who had flown over the target.

Occasionally a dive-bombing mission may be flown at low-level right up to the last minute in order to effect surprise. An instance of this was the P-38 dive-bombing raid against the Romana Americana Refinery at Ploesti, when Col. William F. Litton, CO of the 82nd, led his P-38s on the deck for over 600 miles in an attempt to reach the target before the customary effective smoke screen could be thrown over it.

Both in helping plan a mission and in briefing it, an S-2 officer must be eternally alert. He must use his imagination. On a dive-bombing mission against Valence Airdrome last summer, one of the landmarks was a fork of the Durance River. Although he had noticed it on the map, the briefing officer (in this case the writer) neglected to point out the similarity of another fork of the river about 20 miles to the south. The mission got a bit off course, thought the wrong fork was the right one, and proceeded merrily along without ever finding the assigned target.

Briefing in our group takes place an hour and a half before take off. It is prepared and delivered by the S-2 officer in a manner designed to present all facts on the mission in simple fashion and logical sequence. The data covered in such a briefing has often been described. Generally it will cover the results of yesterday's mission, the Air Force program for the day, the group's particular assignment with chronology and route, description of target and its importance, flak, enemy fighters, P/W conduct, air-sea rescue, radio homings, etc.

The weather officer then delivers his forecast, watches are coordinated by a time check, and the briefing is closed by the formation leader who covers at length exactly how the mission will be flown in the air. The briefing can take twenty minutes or four times as long, depending on how difficult and complicated the mission may be.

Each pilot is given information concerning take-off, rendezvous and target times, the mileage and magnetic course for each leg of the course and other pertinent data. The S-2 officer checks with the pilots, tracing out the route on the map with his pointer. The S-2 section also provides maps with complete courses and times for squadron and section leaders.

Information used in each briefing comes largely from the Operations Order and its Intelligence Annex received through channels from the Air Force during the night. Additional sources of briefing information are the daily and weekly Air Force and Wing summaries and memoranda which the S-2 must read faithfully to keep up to date. And for every target the Group S-2 Target Section has a special folder on file with accumulated photos, target charts, and other information.

Our group maintains its own full-scale fighter and flak situation maps, changed daily as new photo reports come down from Air Force. Occasionally information is received from other sources. Last autumn a P-38 mission flying over heavy cloud cover in Yugoslavia popped into the open for a minute and was blasted by an accurate concentration of bursts from a single German battery which shot down one P-38 and put some 60-odd holes in another. Nobody was able to place the exact location of this battery. However, several weeks later, the pilot who had been shot down made a successful escape, returned to the group, and informed the intelligence officers that according to the Yugoslavs this particular battery had by far the highest score of Allied aircraft destroyed in the entire country. The escaped pilot pinpointed its location on the flak map and the area was studiously avoided thereafter.

Interrogation after a mission takes place as soon as the dust has cleared and the pilots have reached the S-2 hut to collect their coffee and doughnuts from the Red Cross girl. Each squadron is interrogated separately by its two intelligence officers in front of a large map adjacent to the S-2 office.

Interrogation is a fairly simple procedure and consists mainly of letting the pilots tell their story in their own way. After a couple of dozen missions the older pilots generally know what sort of information their S-2 is after and give it without too much prompting. Squadron and flight leaders are the most reliable informants. New and inexperienced pilots, flying as wingmen, generally see little more than the plane ahead of them during the entire mission.

Prime responsibility of the S-2 is to see that no pilot escapes from the interrogation without having first given up all information of any value. It is not desirable—as once happened—to have a conscience-stricken pilot call up some two hours after the briefing and announce that he has forgotten to report an important enemy submarine sighting in the Adriatic.

When there has been a hot strafing mission or aerial battle with the Luftwaffe, it is the difficult and sometimes unpopular duty of the S-2 to insure that the victory claims of our pilots are as nearly accurate as it is possible to be. It is obvious that in some instances two pilots may both in good faith be claiming the same plane, and this duplication must be eliminated.

Last summer the 82nd caught a formation of 16 ME-410s climbing up near Vienna with the felonious intention of attacking our approaching bombers. The P-38s slipped up behind the enemy aircraft and in approximately two minutes slaughtered every one. It was clear that there could

With a wingman covering each element leader, these Lightnings fly in battle formation to a target in Northern Italy.

only be 16 victories, but the total squadron claims exceeded 20. So the group intelligence officer collected a large blackboard and corralled all the pilots into the hot briefing hut where the entire aerial battle was reconstructed step by step and the claims adjusted to the proper number by general agreement.

The practice of attempting to ascertain total damage before evaluating individual claims is a good one. On a strafing raid you may be able to obtain a consensus from the pilots on how many columns of smoke were seen from burning aircraft or trucks when the shooting was over. On one of the group's many strafing missions in support of Marshal Tito's Partisans in Yugoslavia, a column of enemy motor trucks was attacked by the P-38s. Several pilots, who looked back at the completion of their many passes, counted about 15 columns of smoke from enemy vehicles. The group CO and most of the pilots, however, felt that a far larger number had been destroyed, and individual claims would have come to about twice the figure of smoke columns. Nevertheless, the S-2 section conservatively reported the results of the mission as 15 enemy trucks destroyed and an additional number damaged. On a mission over the same road the following day, pilots counted exactly 15 charred truck skeletons and wrecks at the site of the attack.

Gun cameras on P-38s provide some confirmation of claims but they are still far from perfect. Photo recon pictures also give a check on reports of dive-bombing results. Sometimes there is a pleasant surprise, as in the case of a dive-bombing mission which the group flew from its first base in southern Italy in the autumn of 1943. Returning pilots reported pessimistically that at the most only two or three bombs had landed on or near the target—the locomotive roundhouse at Skoplje, Yugoslavia. However, photographs taken the next day showed that by a fortuitous series of explosions and lucky hits, some 44 out of 47 locomotives had been destroyed or damaged by the P-38 attack.

Occasionally an entirely new problem will arise in interrogation. Once our group was stationed in Italy on the same airdrome with "co-belligerent" Italian fighter pilots. Only recently we had been attempting to shoot them down and vice-versa. On the spur of the moment and possibly a little vino, permission was obtained to run a little dive-bombing mission against an enemy ship off Greece with some dozen Italian fighter pilots in their Macchis acting as top cover for the P-38s. Fortunately the Italians experienced no lapse of memory as to the identity of their current friends and enemies—and the mission went off successfully. On its return, the intelligence officers struggled with their first—and last—effort to carry on an interrogation through the medium of an interpreter.

The whole object of interrogation is to produce concise and comprehensive reports on the mission for the higher echelons. First, material for a flash telephonic report giving the highlights of the mission is collected by the group intelligence officer or his assistant moving rapidly between the squadrons which are being interrogated within spitting distance of each other.

Next, when the squadron IO's have completed their detailed interrogation, all the intelligence officers foregather to coordinate on a more complete consolidated telephonic report to be sent off to Wing. These meetings are generally enlivened by a certain amount of banter and inter-squadron insults. One of the S-2s then has the tedious but important job of making up the final typewritten report which will stand as the official account and will cover every detail of the mission under various headings. It is forwarded to Wing as soon as possible.

In different units, S-2s have different jobs and do them all, rarely thinking any one of them odd. In one fighter group in Italy, it appears that the command section was quite enthusiastic about duck-shooting on a little lake near the Adriatic. It is reported to have been the job of the S-2 —who was not averse to duckshooting himself—to arrange for any P-38 going up on a training flight to come over and buzz the reluctant ducks at one end of the pond so that they would fly over the expectant gunners waiting at the other end.

With Nissen hut for backdrop, P-38 pilots are briefed for mission escorting heavies.

All in all, for the ground officer in the AAF who wants close participation in the war, S-2ing in a long range fighter group in combat provides just about as interesting, varied, satisfying, and time-filling a job as can be found anywhere in the armed services. ☆

Answers to "How Sharp Are You?" on Page 2

1. B-24. (Distinctive shape of fuselage, high wing and nose turret are distinguishing features.)
2. Yes. (You would be able to see part of its three-blade construction if it were not.)
3. Yes. (Nose turret mounts twin 50-caliber machine guns.)
4. Up.
5. True.
6. 227.
7. Four.
8. Corporal.
9. Microphone. (Mike is used for communication between control jeep and positions inside bomber.)
10. One.

THE BLISTER CLUB

(Continued from Page 5)

the area was filled with Nazis, but they kept the Americans hidden for eight days.

The two flyers were put under the charge of a 21-year old Frenchman who spoke no English. He boldly marched them right down the main street of the town, past the Nazis and into the railroad station. Here he bought tickets and they rode the train to Sedan.

"It scared hell out of us," the copilot explained. "We were riding as passengers with Jerries all around us. We got to Sedan and our guide took us to another house. We stayed at Sedan three weeks, changing houses every day or so. There were over 40,000 Nazis in the city but the French took us for walks in daylight. It was exciting all right, but not very comfortable.

"We wanted to get to Spain for we knew that we could then go on to Lisbon and home. We explained that to the French but they kept shaking their heads and telling us it couldn't be done. Seems our own planes were bombing too well and the railroad between Sedan and Nancy was out. Finally we had to agree to go to Switzerland.

"Fortunately, a couple of the French knew English and were able to explain what we were to do. Again we were escorted by the 21-year old Frenchman who took us by train to Paris where we rode the subway across town to another railroad station pretending to be Polish workers on the way to another job. The French every now and then eyed us and all the way through I had a feeling—and I've talked to a lot of the other boys and they agree—that the French generally knew who we were but never let on.

"Finally, we got on a ski train going south to the French Alps. We stayed in this very village for two and a half days. Then we were led to within a short distance of the frontier where we remained another 24 hours. The next night the French motioned us to get into a truck that was filled with empty wine barrels. We couldn't see where we were going as we had to keep well out of sight. Finally, the truck stopped, someone rapped on the barrels and we looked out.

"The driver jerked his thumb and we looked in that direction—the truck was next to a barbed wire fence. As we climbed out of the truck, the driver whistled and a Swiss guard came down and opened a gate. We shook hands with the driver and walked across into Switzerland."

A sergeant engineer of a Fortress was in the second Schweinfurt raid of October 14, 1943, when the 8th Air Force sustained its greatest loss of 66 heavy bombers but heavily damaged the target. Two engines were knocked out by flak and they dropped behind the formation waiting at their guns as the fighters came in to finish them off. They didn't have long to wait—soon the pilot called for them to bail out. The sergeant was one of the first out and he watched the others leave the smoking plane. He counted seven people, two of whose chutes did not open.

Not until he hit the ground did the sergeant realize that the jar of the chute opening had jerked his right shoe off. He looked about but the wind had separated him from the other four men. Knowing he was on the German border near Nancy, he went into a forest and spent the night.

The next day he found a small road and limped into a town where the French, who had watched the plane crash and the chutes open, were expecting him. He didn't speak the language, but by simple gestures signified what he wanted and they directed him to a shoe store where he purchased a new pair. After receiving clothing and food he explained that he wanted to reach Spain. The villagers pointed out the general direction and he started to walk.

In two days of walking his feet were so badly blistered he could go no farther, had a mixed feeling of dismay and relief when French police stopped him and took him in custody. They turned him over to the underground who hid him in a canal boat for a week until his feet were partially healed, and then he was taken to Verdun.

There he met three other AAF flyers who had been shot down on the same mission. After waiting four days at Verdun the underground took them in pairs to Belfort where they were turned over to a couple of French who guided them across the border and turned them over to the Swiss police.

Blood poisoning had begun in his feet and the sergeant was put in a hospital at Pourentry where in the next bed was the radio operator from his crew who was hospitalized with part of a 20 mm bullet in his leg. After four days the engineer's feet were healed and he went into town where one of the first people he bumped into was his copilot. This officer had broken some toes on his left foot in landing after his jump but refused to go to a hospital until he'd checked in at the Military Attache's, saying he had made it this distance in that condition.

A month later another officer of the crew showed up—the navigator. He told them that he had gone out to the wreckage of the plane with the French and had been with them when they buried the four crew members found in the craft. The people of the town of Toul had made a collection and put up headstones for the dead flyers.

One of the escapees, a lieutenant from a 15th Air Force Liberator, spoke fairly good French and made rapid progress through the underground. Within a week he was across the Swiss border without ever having been bothered by Nazis. Only one thing occurred that he thought worth mentioning:

"At one small house where I spent a day, the woman told me that her husband had been in the French Army, having been taken prisoner four years ago. She'd heard less than a year ago that he was still alive.

"She was a very nice lady and must have been pretty good looking before the war. Now her hair was pulled straight back from her forehead and tied in a knot behind her head and she would look at me with her large gray eyes not as if she saw me, but as if just behind me were occurring all the things she described.

Maquis guards border road. Previously, men of the Maquis guided allied aircrews into Switzerland.

"She was fixing me something to eat when there was a rap on the door. I guess I just froze. It was too late to do anything. The door was thrown open and there were a couple of Jerries outside. The woman walked over to them slowly and casually as if she'd been expecting them and as if I were part of the furniture. The Germans just pushed a piece of paper into her hand and slammed the door behind them. She came back to the table where I was sitting. I always will remember the way she moved. She didn't seem

to walk, but to glide along as if on wheels.

"We both bent over the sheet the Germans had given her. I could understand it easily. The Germans were offering a large reward for any enemy flyers turned in to them. They'd also release a Frenchman from prison camp for every Allied flyer they got. I guess I read slowly, for she was finished reading before I was. I looked at her. This time her eyes seemed to be focused on me as if she were seeing me for the first time.

"Then, with her eyes still on me, her hand reached out and picked up the paper. She crumpled it and threw it into the kitchen fire and went on fixing me something to eat."

Not all of the men traveled by themselves. One group of nine flyers from four different crews got together after being shot down in Belgium. They openly walked into Nancy and were not picked up by Germans because the industrial outskirts of Paris were getting bombed and the roads were full of refugees, many of them laborers from other countries.

Of that nine men seven got through and became part of ACRU but two were caught by the Germans—which seems to be about the average percentage for escapees. They were kept in Liege, Belgium, for almost two months and say it was like Chicago at the height of the Prohibition era with the Belgian Maquis operating exactly like movie gangsters.

The Americans went to football games, sports events, movies and cafes. They learned that each of the Belgian Maquis had a woman with him all the time. Generally it was a large woman with a Mae West figure. The slim type that is so popular in the United States was sneered at. "What use would she be?" the Belgians asked. "Can she hide a gun in her bosom? Some of our women can carry two guns there and the Nazis never search anyone but us."

Liege was the clearing point for all escapees from Belgium. Every one of the Allied soldiers received wonderful treatment and it was almost like being at a rest camp. If they wanted excitement they went along on some of the Belgians' expeditions to get fresh supplies and money from the Germans. One day the Belgians gathered the boys together, got them placed in advantageous spots in a corner cafe, and, after ordering drinks for them and being certain they were all right, left them there. In half an hour a German armed money truck rumbled down the street and stopped in front of the bank across the way. The whole thing was perfectly timed. They all remarked they felt as if they were seeing one of the early Cagney pictures. Without any fuss a couple of their Belgian friends sauntered up to the driver and guard, pushed guns in their sides, and in a moment the Germans and Belgians were back in the truck. They drove out to the country where the patriots removed the money at their leisure.

"You must not consider us unlawful," one of the Maquis was careful to explain. "I am an attorney and nothing pains me more than breaking the law. But we did not set up this government and the Germans do not belong here, handling our money and property. We take the money from them and use it to buy guns to shoot them so that we can again have our own government and be law abiding."

After a good deal of planning the Belgians explained their next raid to the men. It was to be a large factory and storage point in the outskirts of the city, but that noon all the Belgians' plans literally went up in smoke. A large formation of AAF planes wiped it out. The patriots were highly annoyed at this wanton destruction of German property when they had planned to do it in a much neater manner.

The next day travel began—practically in caravan. Not only were there nine flyers but they had a Canadian, an RAF pilot, and a U. S. Engineer who had been captured on D-day in Normandy. The Germans had marched him and 600 other Allied troops through Paris on D plus 22 and French collaborationists had hissed and slapped them. The Engineer escaped by jumping out of a box car with some English and Free French. He'd been with the FFI before joining the caravan.

Their guide was a 50-year-old Belgian woman who was making her second trip with escapees all the way across France to the border. As decoys she had a Belgian cripple and an old Belgian man. The flyers and the other escapees just tagged along, letting her do the talking for all of them.

By the time they reached the border they had added more men—two German deserters, and a paratrooper who'd been dropped at the wrong place and was highly annoyed about it. The biggest scare they got was when our own planes came over and raided factories near them. This occurred several times and the men agreed they never realized what bombing really meant until they were at the other end of it.

Although the trip to the border had been interesting and not without some amusement, the culmination was tragic. They were brought to the border at night and given careful instructions—the main thing for them to remember was that there were three barbed wire fences at this point. Singly they started out in the dark. But either the French were mistaken or the Germans had suddenly done something for after getting through three fences they were badly cut and hurt when they ran into another. An alarm was sounded. Most of them scrambled back to French soil and hid at a prearranged rendezvous.

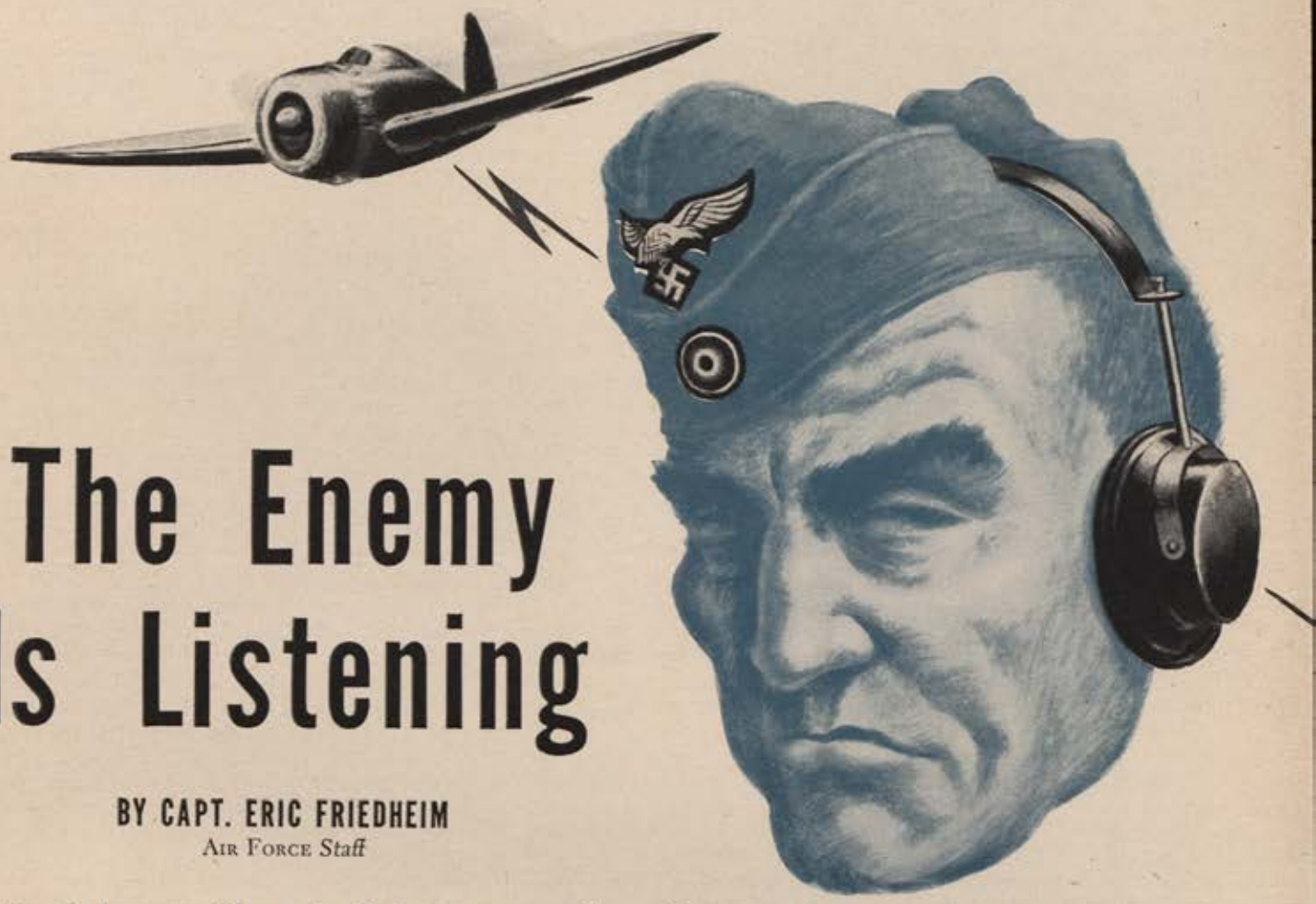
At dawn they were able to count the barbed wire fences. There were five. A few of the newcomers were missing and one of the original nine was gone. The pilot who was the leader of the party decided that someone had to do some scouting to see if they could make it before the sun was too high and would permit no one but himself to do the job. They watched helpless when he was caught only 20 yards from them by a German patrol. Later they heard that he and the other man were prisoners. Finally the men found some French who helped them cross the border that night.

Without exception all the airmen who had escaped the Nazis talked about the magnificent aid they had received from the men and women of France, Belgium and Holland, whether the Maquis, FFI, Belgian partisans, Dutch underground, or just citizen patriots. The escapees could not put down the names and addresses of those who aided them for fear of reprisals in the event of their capture, but they remember almost every one.

For instance, the day after the men were brought out of Switzerland one of them—the first copilot mentioned in this article—was seen walking out of the village carrying all the chocolate, cigarettes, soap he could find. When he returned, he couldn't stop grinning he was so happy.

"Just 400 yards from here" he said, "is a house where a lady hid us for two and one-half days after we got off the ski train and were waiting to cross the border. Just now I walked down the road to thank those people. You should have seen the welcome they gave me! I told them about the others who got through. The woman and her son and daughter are coming to have dinner with me here tonight. I'm lucky. I'm able to at least thank one of those who helped me. I'd like to go back and thank every one of them —and maybe some day I will."

The next day they were taken to an airfield where they paid no attention to the 40 German prisoners working under the stern eyes of the FFI. They were too busy staring at the C-47 that stood waiting to take them out. Slowly several of them walked around the transport, and then one ran his hand along the underside of the wing the way a man does when he touches something he loves. Another escapee looked at him and nodded. "We're home," he said. ☆



The Enemy Is Listening

BY CAPT. ERIC FRIEDHEIM
AIR FORCE *Staff*

In combat zones, if you don't know your radio equipment, you may easily dictate your own death warrant

The Thunderbolts were nearing the target, a strategic railroad bridge deep in enemy territory. The ride had been uneventful; weather was holding and there had been no flak. In his cockpit, the pilot leading Red flight sang softly to himself.

Suddenly it happened. High out of the sun, more than a hundred Messerschmitts and Focke-Wulfs knifed down on the American squadron. Quickly the Thunderbolts jettisoned their bombs harmlessly into the fields below and tried desperately to fight their way out of the trap.

What had gone wrong? The mission had been planned exactingly to catch the enemy by surprise. Had somebody tipped off the enemy? Or was it pure accident that an overwhelming force of interceptors was on hand at the right spot at the right time?

Intelligence officers, reconstructing the debacle, soon determined it wasn't any accident. The Germans had been tipped off. Not by any spies on the Allied side. They received their information from the Thunderbolts themselves shortly after they had left their base. The information came from the pilot who was leading Red flight.

He had been singing ever since the squadron was airborne. Now there isn't any regulation prohibiting a pilot from singing while on a combat mission. But the rules are stringent about carelessness. The pilot leading Red flight had neglected to check his radio-telephone equipment and his voice was going out across the broadcast channel into the interested ears of the enemy. German monitors kept tuned to his transmission. By triangulation they found it a simple matter to plot the exact course of the Thunderbolts.

This is not an isolated case. Files in every combat theater bulge with reports detailing how failure to maintain radio-telephone discipline has resulted in disaster.

Proper use of radio equipment and standard operating procedure for R/T transmission are given considerable emphasis in the curriculum for pilot training. But a survey shows that many pilots, some of them seasoned combat veterans, pay little attention to R/T regulations. Many are unfamiliar with the radio equipment that is installed in their plane.

Communication between fighter aircraft is highly important in the teamwork of combat. But every word broadcast from one airplane to another can be heard by enemy listening posts. A few careless words may give alert monitors enough information to determine not only the route of the attacking force but also its strength and the purpose of the mission.

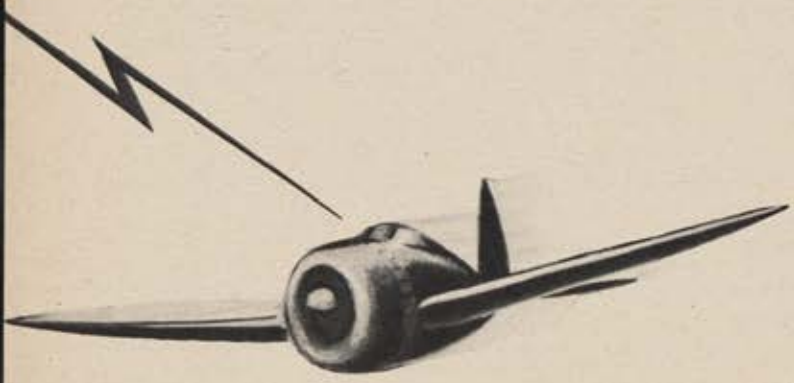
Listening in on R/T conversations is a major function of combat intelligence. The enemy listens to us and we to him. Frequently both sides are careless.

During the Normandy campaign our monitoring service picked up a conversation between a German ground controller and a Luftwaffe squadron leader. The controller instructed the squadron leader to take his flight to a certain Allied target. Our monitor immediately notified Allied fighter control. Within seconds word was flashed to a flight of Allied patrol planes to intercept the Germans. But the German listening post was wide awake. Hearing the instructions to the Allied interceptors the Germans hurriedly told their planes to change course and return to base.

Capture of several German Air Force Signal Intelligence documents has shown that enemy knowledge of USAAF and RAF orders of battle and tactical plans is extraordinarily complete. Most of this information was gained through radio monitoring.

These documents indicated that the Germans had learned many details regarding the disposition of groups, squadrons and equipment at various airbases. In some instances they were able to appraise both the morale and operating efficiency of various organizations.

ILLUSTRATED BY T/SGT. DON BROCKELL



It was disclosed that the Germans not only paid close attention to R/T conversations during combat operations but patiently tuned in on all routine flights over England including training activities. By monitoring messages from cargo and transport planes the Germans also guessed at the location of principal Allied air supply bases.

From various intercepted transmissions, the enemy was able to draw many accurate conclusions regarding American and Allied air tactics. The Germans determined that early-morning weather reconnaissance flights were a reliable sign of combat operations during the day. Attempts by Allied bomber formations to shorten their time of assembly over England also were noted by the Nazi radio sleuths. Running comments by our bomber crews on Luftwaffe interception, flak and damage sustained by American planes during combat have been of considerable value to the enemy.

During the past few months, communications training officers of the First Air Force Fighter Command have been attempting to find out why fighter pilots, who ordinarily are most painstaking about flying and combat techniques, often heedlessly risk their lives by blabbing vital information to the enemy over their radios.

In the opinion of Capt. David W. Thomas, communications officer at Mitchel Field, who has specialized in the problem of R/T discipline, many pilots fail to grasp the fundamentals of radio telephone procedure. The results of a questionnaire given hundreds of pilots in Africa and in the United States back up his conclusion. This questionnaire indicated a widespread ignorance by pilots regarding some of the most elementary phases of R/T operations.

One typical group was asked what indication does the pilot have to show him he is transmitting when using the airborne SCR 522 radio. Thirty-three of the 67 pilots who were asked this question didn't know. The answer to this one is that the indicator light goes out.

Four pilots were stumped by the question: If, on a combat mission, you were told to observe radio silence would you turn your VHF Command set off? The proper procedure is never to fly with the command set turned off because you might miss some bit of vital information such as the warning that enemy planes are approaching.

Five pilots erroneously thought that a homing station operating as a single unit can give you both course and distance you are from the station.

Worst of all, two of the pilots taking this quiz, couldn't give the meaning of some basic R/T terminology as vector, angels, bogey, steer, mayday and cockerel.

Reading through the transcripts of R/T conversations in various combat theaters hundreds of security and discipline violations become evident. There have been instances in which pilots on their way back from missions talked about such matters as what they would do on their next 48-hour leave.

Army communication experts emphasize the importance of using R/T sparingly. When one man is transmitting no one else can break in. If someone is clogging the line with useless talk he may be shutting off someone else with an urgent message.

As a general rule, radio silence should be broken only when it is necessary to insure success of the combat mission. Excepted, of course, are emergency calls, such as a lost pilot requesting a fix to get him back to base. No information of value to the enemy should be passed over the air except by code. Transmissions should be kept to barest minimum to reduce the enemy's opportunity for making a "voice-fix."

Fighter pilots who have been flying as a group for a long time frequently lapse into the habit of calling each other by their names or forgetting to use the standard code words. This always is dangerous. Every airplane in every formation has an official designation such as Red flight one or White flight three. If a leader suddenly orders "Bill" or "Joe" to do something there may be confusion. It is possible that there are several "Bills" or "Joes" in the formation.

Sticking to the R/T code words also is important, particularly if our formations are engaged in joint operations with planes of Allied air forces. These words have been adopted and are understood by the airmen of all the United Nations.

Many Polish, French, Belgian and Dutch pilots in the RAF don't speak English. Deviation from the code words results in obvious confusion. Another advantage of code words is that they are designed, phonetically, to be understandable through operational noise.

No fighter pilot is foolish enough to take off against the enemy without his guns and a thorough knowledge of how to use them. His R/T equipment is a weapon of equal importance in modern aerial warfare. In the swift seconds of battle or the agonizingly long period of trying to get home alone, radio plays a paramount role. Familiarization with this equipment and its proper employment may spell the difference between life and death. ☆

THE FIGHTING 13th

(Continued from Page 18)

When photographs taken during the action were examined, the startling discovery was made that one of the battleships on which direct hits had been scored was the Yamato, Japan's largest and the pride of her navy. This was the first time it had been sighted and these were the first photographs of the Yamato. Through these photographs, corrections were made in our Navy drawings and in intelligence reports.

The fact that this method of bombing heavily-armed ships from an altitude of 9,000 feet was hazardous though effective was stressed again by Col. Oliver S. Picher, executive of the 13th Bomber Command. He pointed out that pilots on such strikes were reporting ack-ack the way they do cloud cover: "we have run into eight-tenths flak cover."

Another method of attack is used against ships of the Sugar Charlie class and smaller. This is performed by individual B-24 attacks at mast level. The technique is to circle outside the range of enemy ack-ack fire to observe the ship's speed, possible evasive action, firepower and the best axis of attack. The plane then turns away from the target and at a predetermined distance reapproaches, taking advantage of the sun, possible clouds or any other cover. The attack is made at a maximum of 40 feet above the mast.

The 13th Air Force is also adept at night shipping attacks. Constant sea searches are maintained by these B-24 snoopers which are able to detect their targets in the dark by means of electronic devices.

From attacking shipping to striking airdromes is an easy transition for the heavies. Often a mission that started as one is changed in flight to the other, due to last-moment tactical developments. Although airdromes have always been a high priority target in the Southwest Pacific they are extremely unsatisfactory. They are easy to repair and must be hit repeatedly.

Repeated attacks on Jap airdromes harboring aircraft that are harassing the Philippines operation is an unscheduled participation by the 13th Air Force. In the overall planning of the Philippines campaign, the 5th was designated the assault air force. The supporting assignment of the 13th was to protect the main line from a westerly flank attack and to guard lines of communications from the south until such time as they could be extended eastward. When urgent emergency requests came from the Philippine headquarters of the 5th for the 13th to strike at tactical targets in the active combat area, they were complied with immediately. Air cover, strikes by heavy bombers against shipping and other installations, knocking out of airdromes, sea searches, air-sea rescues, all have been part of the extra job taken on by the 13th.

In this phase of activity a medium bomb unit—the B-25s—played an important part due to their versatility. They had long experience in all types of bombing within their range, strafing and the dropping of para frags, mast-level shipping strikes, precision bombing from medium altitudes.

With the destruction of important Jap oil sources at Balikpapan and Tarakan, with its aerial onslaught on enemy shipping, with its active participation in the Philippines campaign far beyond its original assignment, the 13th Air Force has come into its own.

It has never been a large air force but it is now growing. During its first phase of operations in the South Pacific, its bombers struck heavy blows at the enemy day after day and knocked out Rabaul; its fighters shot scores of Jap planes out of the sky during the time of these accomplishments. However, they were a part of the spectacular Navy show. Its job in the South Pacific done, the 13th moved over into the Southwest Pacific to join Lt. Gen. George C. Kenney's Far East Air Forces. Again it found itself in an auxiliary role.

This situation does not worry the 13th. In the words of its commanding general, Maj. Gen. St. Clair Streett, "Our job is to do what we can to help win the war, not to talk about it. We think we have done and are doing a good job. If we are, the credit --all of it—goes to the men who are doing the actual fighting, not just the aircrews but the men on the ground who not only do the dirty work but in their leisure time sweat out their planes and combat crews."

The men of the 13th have a tremendous pride in their air force. Like their general, they know they are doing a good job. As one GI put it: "We don't need publicity to prove it, but things can go too far, such as when my girl writes asking when the 13th is going into combat because, according to the papers back home, all the air fighting in the Pacific is being done by the 7th and 5th. Am I in a service outfit, she wants to know. And me in the fighting 13th. How do you like that?" ☆

Answers to Quiz on Page 42

1. (B) One of the Volcano Islands
2. (A) 60 miles
3. (A) True
4. (D) In Manchuria
5. (C) $60 per month
6. Army Air Forces Training Aids Division
7. (D) More than two and a half years after the Armistice, on July 2, 1921
8. (B) Red with a vertical blue stripe in the center
9. (B) 2,100
10. (A) January 2, 1942
11. Parallax error is that resulting from reading the instrument from the side, thus giving an untrue picture of the actual position of the indicator pointers
12. (B) German radar apparatus
13. (B) 24
14. (C) December 18, 1922
15. There is no 16th Air Force
16. (A) True
17. They are all located on the Philippine island of Luzon
18. (B) Traveling in an ATC plane
19. (B) Maj. Gen. Hoyt S. Vandenberg
20. P-59

Rendezvous

(Continued from Page 52)

Ratings for Superfort Radiomen

Dear Editor:

Some of the fellows graduating from this school each week are being sent to B-29 school for specialist training and assignment to B-29s. Most of these men are top students and really deserve the break—but:

We have heard both from men here and men assigned to the 20th Air Force overseas that the men assigned as radiomen on B-29s get lower ratings than men flying on 17s, 24s, etc.

If this is true, it leads to the idea that a lot of boys will let their buddies pull ahead of them in scholastic grades so that they won't go to B-29 school. It seems only logical to me that the men assigned to 29s, being better operators, should get at least as high a rating as the 17 and 24 radiomen.

How about it—do you think you can dig us up the true facts on the matter?

Pvt. Willard Andrews, Sioux Falls, S. D.

It is established that men with MOS 757, regardless of the plane in which they fly, are generally eligible for ultimate promotion to staff sergeant. The circumstances and speed of their promotion are, of course, left to their organization. But there is no discrimination among types of bombers.—Ed.

Engines vs Motors

Dear Editor:

How about straightening something out for some of your writers and many of the nonflyers among your readers? I have always been led to believe a motor is a machine run by electricity. A prop governor or a wheel retraction mechanism may be run by a motor, but a plane—never. Ever heard of a crew chief speak of a motor change? I think he would call it an engine change.

Congratulations on your magazine. I only wish it were twice the size.

1st Lt. Paul D. Pattinson,
Gowen Field, Idaho

Although the dictionary makes no hard and fast distinction, AAF usage is certainly as you indicate. If we ever depart from it, both writer and proof-reader have been napping. Not to mention the editor.—Ed.

Those Wing Explosions

Dear Editor:

. . . I have seen airplanes, both American and German, shot down in large numbers over Europe. At least half of them went down because the fuel tanks exploded. "They blew up," we would tell the S-2 officers at interrogation.

High octane aviation fuel will burn in the presence of oxygen, but it will not explode. The real cause of the accidents was the mixture of gasoline vapor and air in the partially empty portion of the tanks, created as fuel was used up. This is substantially the same air-fuel ratio found in an engine cylinder, and all it needs is the "spark plug" of an incendiary or tracer bullet to set it off.

In order to neutralize the formation of

this dangerous vapor without resorting to air vents in the tops of tanks, I think it would be possible to introduce carbon dioxide, helium or some other inert gaseous element or compound to expand and displace the fuel as it is taken from the tank. This inert gas should always be at atmospheric pressure or slightly greater to insure positive fuel feed to the engines and prevent collapse of the tank. Low pressure cylinders would suffice for this purpose, and as fuel is used up, a check valve would admit more CO_2 into the upper part of the tank. . . .

T/Sgt. Olin O. Dobbs, Las Vegas, Nev.

A very good suggestion. British and Americans in England have been using inert gases in their partially empty fuel tanks for some time. See "Reducing Wing Explosion Hazards" on Page 48 of the January Technique section.—Ed.

The Last Time

Dear Editor:

. . . Within the next few days I am to be separated from the service and I wanted to get this in while I'm still "military personnel."

During my tour in England I read AIR FORCE Magazine every chance I got and found that it helped me in very many ways. I'd like particularly to tell Maj. Luther Davis how much I admire his work. His invasion articles, which were about something I knew and could criticize from personal experience, were by far the most legitimate I have read on this subject—and that includes stuff by Ernest Hemingway and others. His piece in the last issue—about the sergeant with his own personal breeze—made all of us in the hospital laugh our heads off. For my money he's tops in writing. The various departments are all good. This Is Your Enemy I read often and think perhaps it saved my life.

If it's worth anything to you tell the boys who still haven't been overseas that for my money—and I guess I'm what you call a "veteran"—the most valuable thing they can read to fit themselves for combat is AIR FORCE Magazine. . . .

Tell Major Davis that on the strength of his piece I tried to get into B-29s (*The B-29 and You* by Maj. Luther Davis, your October issue) but they wouldn't have me on account of my health.

Paul L. Dowd, Captain, Air Corps,
New York City.

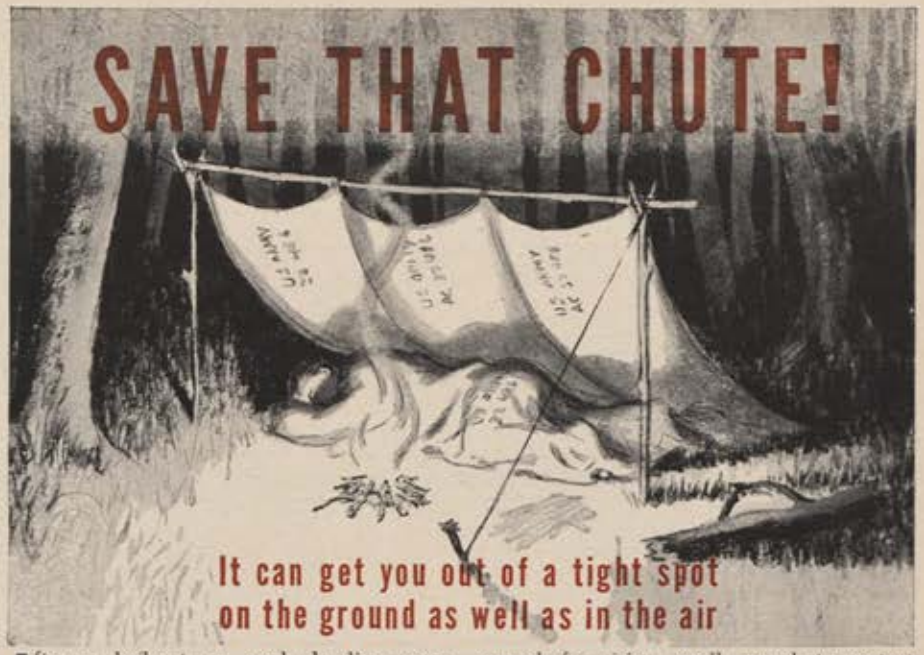
P.S.: I guess this is the last time I'll sign myself that way. So long.

So long. Best of luck.—Ed.

PICTURE CREDITS

FIRST COVER and Page 26: Captain Robert Isear, 8th Air Force. FOURTH COVER: T/Sgt. Roger Coster, AIR FORCE Staff Photographer. 34-35: Signal Corps.

All other photographs in this issue furnished through official Army Air Forces sources. Requests for prints of photographs appearing in AIR FORCE should be directed to the AAF Photographic Library, Headquarters, AAF, Washington 25, D. C.



After a bail-out or crash landing—save your parachute. It can clothe, shelter and help feed you and it can serve as a rescue marker. It can be adapted for more uses in an emergency than any other single item of flying equipment.

From the nylon canopy, the shroud lines, harness webbing, canvas, felt and rubber seat pack, metal harness buckles and rip-cord pins, a survivor can make sandals or boots, snow shields, sea anchors or sails, fish hooks, blackjacks and sling shots. From all over the world have come reports of ingenious uses of parachute equipment by airmen who have returned from desert sands and arctic blizzards, jungle swamps and watery wastes, because they saved their chutes.

One wide-awake sergeant tried vainly to attract attention of planes flying overhead, then touched a match to the rubberized horse-hair chute cushion. The dense black smoke led a searching party to his rescue.

A pilot tied together the harness buckles and successfully kept up his food supply by killing small animals with his homemade blackjack.

In the CBI, a wounded airman was carried through swamps and jungles on a litter constructed from bamboo stalks and the nylon canopy.

For walking sandals, the seat-cushion rubber can be cut to the shape of soles; the canvas pack case is cut into strips for tops and sewed on with the inner threads of shroud lines, heel straps are made from the harness webbing. Such a sandal particularly facilitates desert hiking.

In the arctic regions, three or four layers of nylon make an ideal wrap-around for mukluk snow boots when cut into 30-inch squares and folded around the boot like a diaper. Part of the canvas pack can be used as an outer shoe, utilizing the shroud lines as lacings to hold the warm, flexible and wind-resistant boots to the feet.

For protection against snow-blindness, a two-and-one-half inch strip of the black felt from the seat cushion cover can be fashioned into a mask. One-eighth inch eye slits are large enough for vision, small enough to protect against glare. Elastic cord and hooks from the chute pack hold the mask over the eyes.

Shroud lines, when strung on a frame of boughs, make satisfactory snow shoes.

When winds are favorable at sea, the canopy can be used as a life-raft sail; when winds are unfavorable, a sea anchor can be made with the chute cloth and metal from seat or back pack.

More than 50 uses of parachutes have been evaluated by men of the Arctic-Desert-Tropic Branch of AFTAC at Orlando, Fla., and of the Personal Equipment Laboratory at Wright Field.

Best-known uses of parachutes in emergencies are as shelters—parafly, paratent, paratepee. When fires are burned inside the shelters at night, the shelter will radiate a white light which facilitates aerial spotting by rescue planes.

Other important, but not commonly-known uses of the parachute equipment for survival include:

(1) A simple sling-shot made from a "Y"-bent tie-rod or other metal bar, elastic cord and harness webbing or canvas for pellet holder. With practice, small birds, rabbits and squirrels can be killed.

(2) The single wire strand from the rip-cord makes an ideal wire snare which can be set on animal trails.

(3) Fishing seine and hand nets are easily made with nylon, poles and heavy wire from parapack.

(4) The sponge rubber seat cushion can be used as a life preserver; will keep a small man afloat for hours.

(5) The 24 shroud lines can be used for tying and lashing or as lifelines. Cut open, the shroud lines are made up of 7 to 9 corelines which can be used for sewing clothes, weaving or as fishlines.

Whether the chute is used as a knapsack, for bandages, for map-making or for barter with the natives, it can be a survivor's most valuable possession in any part of the world. Never abandon it, keep it with you always for it can save your neck in more ways than one. ☆

Veteran mechanics overhaul Mustang's engine.

Group commander briefs his men before mission.

This pilot was hit by Nazi flak while strafing.

Armorer removes machine gun from P-51 for routine inspection.

Sergeant armorer and his helpers pack 50 cal. ammunition into a Mustang's wing.

MAAF's 332nd

The 332nd Fighter Group has been flying high, wide and handsome in the Mediterranean Theater since April, 1943, when the first squadron was formed from pilots fresh out of U. S. flying schools and pressed into the Tunisian campaign. They flew P-40s then, but during the course of other engagements—Pantalleria, Sicily, Anzio, Salerno, Cassino, Rome—they have flown every type of fighter plane except the P-38. At present, they are piloting Mustangs, marked with red on rudder and stabilizer.

There is still a handful of men in the outfit who participated in the first African missions, but most of them came over in January, 1944. All newcomers get twenty hours' flight training: five one-hour solo familiarization flights, ten hours of formation flying at different altitudes, with and without wing tanks, and five hours of miscellaneous flights including rat racing and navigation. In addition, the flyers get a complete course that covers power plant, gas consumption, armament, emergency landing gear procedure, logistics on weight distribution and other technical data.

The ground crew has had to be on its toes as the group switched from P-40s to P-39s to P-47s and then to P-51s. The toughest job was changing from the inline engines of the P-39s and P-40s to the radial engines of the P-47s.

Most of the flights now are long range escort missions with an average time of 5½ hours at 30,000 feet or better, and they have taken the 332nd's "Red Tails" over almost every country in Europe. Many of the men from this group who are being returned to the U. S. for rotation are going to a new medium bomber group that is now in training under Col. Benjamin O. Davis, Jr., former CO of the 332nd. These men coming back are proud men, proud of the record of their group and their own personal achievements. For example, during the recent ten-week period, the "Red Tails" destroyed 170 e/a on the ground and 58 in the air. No wonder they're proud. ☆

Target for today is explained by Lt. E. Gleed.

These members landed with 3 min. gas supply.

Cannon hole is inspected by Capt. A. McDaniels.

Col. Benjamin O. Davis, Jr., Commander of the 332nd, discusses with two of his pilots a strafing mission that he has just completed.

GOT ANY GOOD STORIES? SEND 'EM IN!

France. Some air force officers were billeted in a chateau about five minutes' walk from their airfield. Every day for a week they had walked to and from work across a farmer's field. Then one morning they were confronted with signs which covered the entire area: "STAY OUT! ENEMY MINES!"

Much correspondence with a nearby bomb-disposal detachment finally brought a crew with mine locators, who could find nothing after combing the field. However, they wanted to be on the safe side so they dug up every foot of the suspected area.

When the bomb-disposal unit started away the old Frenchman ran after them, pleading, "Please leave me the signs. Maybe if I put them up next year kind Americans will again help me plant my vegetables."

China. A sad-faced coolie approached the boss engineering officer on an airdrome construction job and said he had a complaint to make. The GIs, he said, were not calling him by his proper name. He was afraid his venerable ancestors would be displeased.

"Well," said the engineering officer, thinking it was probably nothing more than a case of occasional profanity, "what do they call you?"

"Melican soldiers allatime call me 'Sneeze'."

"Sneeze? What's your Chinese name, for gosh sakes?"

"Ah Choo," said the coolie sadly. "Ah Choo!"

Utopia. A crew chief in this theater had a very intelligent little dog with a high degree of mechanical aptitude. The dog hung around the hangars all the time and in his off moments the chief taught him to check landing gear, make preflight tests and taxi a plane out to the hardstand now and then.

He was a modest pup and didn't ever get swell headed over the things he had learned. One day the crew chief was working on the steering apparatus of a fighter craft when he accidentally dropped the stick to the hangar floor.

"Bring it to me," he said to his dog, pointing to the steering apparatus.

"Hell's fire," replied the pup, looking up from a hydraulic job. "That's too much. Who ever heard of a dog retrieving a stick?"

USA. The hazards of training were frightfully exposed recently by the eagerest of several gunnery students who had just finished their first air-to-air firing and were having a bull session with their instructor, a tech sergeant who had come back to the states after 89 missions in Europe.

"I really liked that," one bright, shiny student said. "I hope combat will be as exciting." The veteran looked at him with a pickerel eye and said, "It will be." "But one thing has been bothering me," the kid said, "what was that long round thing trailing the plane we were shooting at?"

England. After investing three dollars in a slot machine at an officer's club here, a major studied the one-armed bandit for an idle moment and, feeling sorry for himself, decided that other guys have all the luck. He could visualize a two-star general walking up to the machine, putting in a single quarter and being deluged with the jackpot —including his hard-earned three bucks. The major was slightly pacified when he found a small sign above the bandit. It read: "In case of air raid stand near this machine. It has never been hit."

India. A crew chief came hurtling out of a B-24 he was servicing. "There's a cobra in there!" he gasped.

Snake experts and cobra fanciers gathered around and someone screwed up his courage and entered the plane. After a few minutes he came out to report that he had encountered no reptile, but had no intention of crawling through the narrow places.

The British in the area were consulted and they bucked the matter to some Indian civil servants who provided a mongoose. This ferocious beast, perpetually angry with snakes, was hoisted into the B-24 and all hatches closed. He finally emerged, snakeless.

Three days later the crew chief who had discovered the cobra originally came down with a case of screaming-meemies. He was found huddled in his bunk, babbling about a snake in his boots. The cobra scare was immediately put down as a figment of the crew chief's imagination, and the B-24 flew three missions before a thoroughly frozen cobra was found behind some ammunition boxes in the waist. That night a further examination revealed a small sand snake in the crew chief's boots. Next day the crew chief was rescued from the psychiatrist, promoted to master sergeant and transferred to a reptile-free area.

What do you think of that? ☆

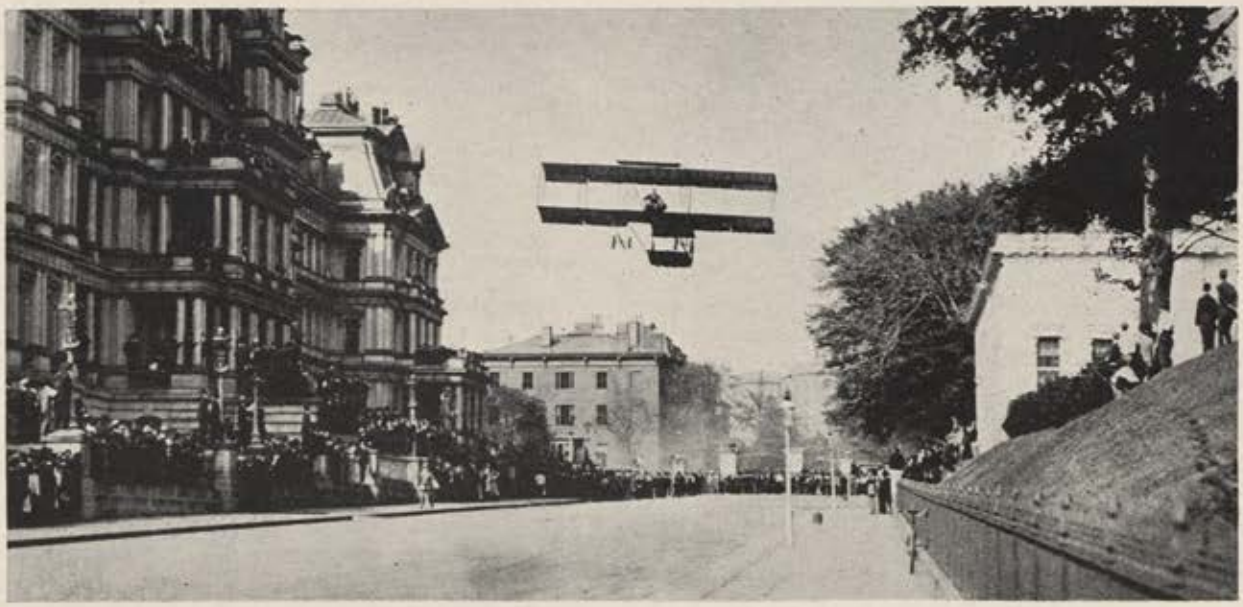
THE ALBUM

1910. Boston put on its best bib and tucker for this flying meet which was the first of its kind. Claude Grahame-White is shown doing his stuff for the ladies.

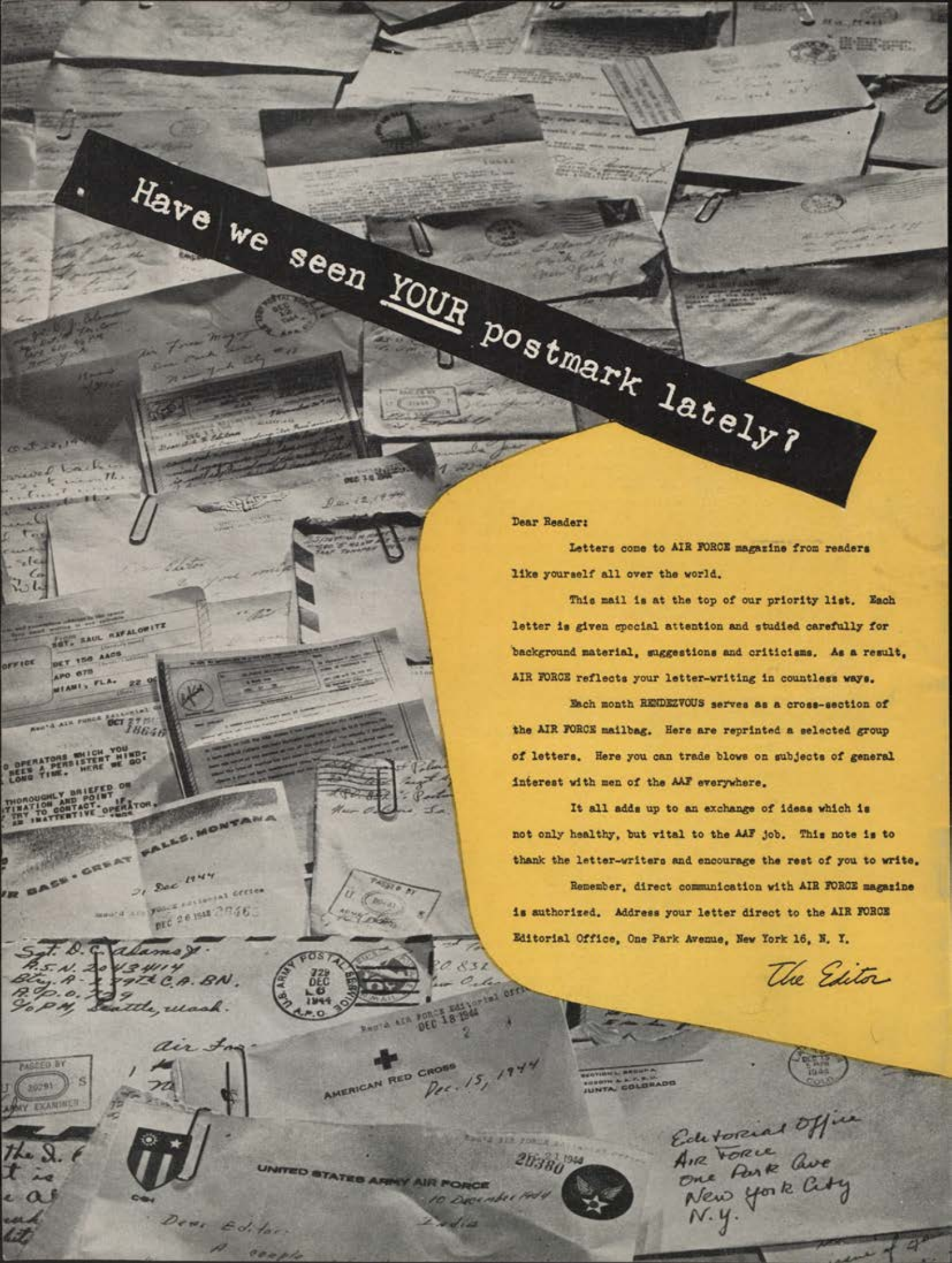
1911. A couple of buddies are about to shove Jules Vedrines into the Paris-Madrid race. In 1912 Vedrines set a new world's record of 105 mph in a U. S. meet.

1910. Looking like a frustrated mosquito, this flying sliver, known as the Antoinette, was the dream child of Hubert Latham who flew it in the Belmont Park meet.

1912. At a time when everybody was looking for a good five cent cigar, a Mr. Gallaudet entered his 100 hp "Bullet" in an aero show at Grand Central Palace.



1912. Here is Claude Grahame-White again, this time hovering over Executive Ave., Washington, D. C., in a Farman biplane. Mr. Grahame-White was not running for any office but just thought it would be a nice idea to drop in on President Taft.



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Each month RENDEZVOUS serves as a cross-section of the AIR FORCE mailbag. Here are reprinted a selected group of letters. Here you can trade blows on subjects of general interest with men of the AAF everywhere.

It all adds up to an exchange of ideas which is not only healthy, but vital to the AAF job. This note is to thank the letter-writers and encourage the rest of you to write.

Remember, direct communication with AIR FORCE magazine is authorized. Address your letter direct to the AIR FORCE Editorial Office, One Park Avenue, New York 16, N. Y.

The Editor